

ORDER NO.DSD0602001CE

Service Manual

DVD Recorder

DMR-ES15EB

DMR-ES15EP

DMR-ES15EC

DMR-ES15EG

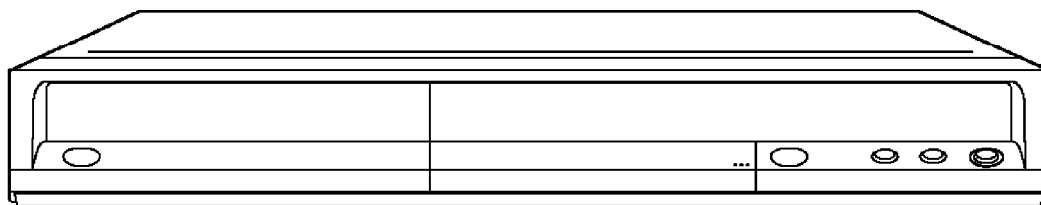
DMR-ES15EBL

Vol. 1

Colour

(S).....Silver Type

(K).....Black Type (ES15EP/EC/EG)



Notes: This model's RAM/Digital P.C.B.

Module are - RFKNES15EB(EB)

- RFKNES15EP(EP)

- RFKNES15EC(EC)

- RFKNES15EG(EG)

- RFKNES15EBL(EBL).

Caution:

Pairing of RAM Drive and Digital P.C.B. as "RAM/Digital P.C.B. Module" have to be replaced together. If the pairing is changed, RAM Drive unit has to be re-aligned. Because the alignment data for RAM Drive Unit is stored in Digital P.C.B..

SPECIFICATIONS

Manufactured under license from Dolby Laboratories. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories.

"DTS" and "DTS 2.0 + Digital Out" are trademarks of Digital Theater Systems, Inc.

Apparatus Claims of U.S. Patent Nos. 4,631,603, 4,577,216, and 4,819,098, licensed for limited viewing uses only.

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MPEG Layer-3 audio decoding technology licensed from Fraunhofer IIS and Thomson multimedia.

1

WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic®

1. Safety Precaution

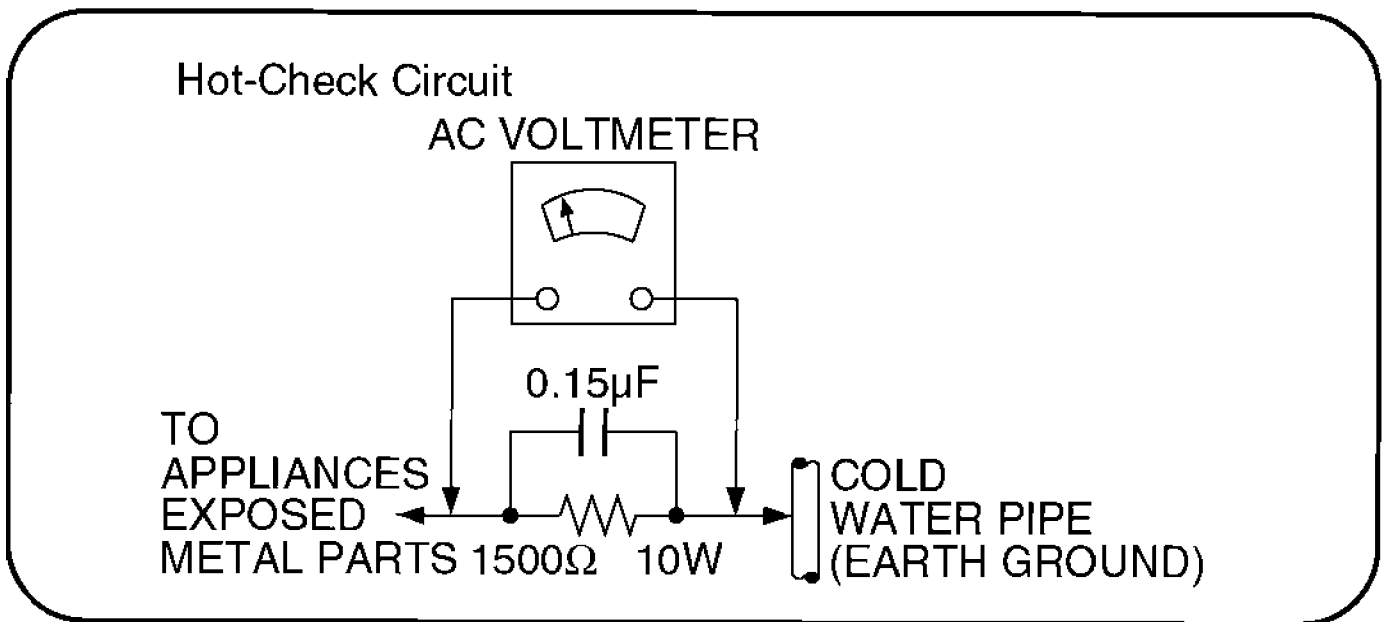
1.1. General guidelines

1. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
2. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
3. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

1.1.1. Leakage current cold check

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between 1M Ω and 5.2M Ω .
When the exposed metal does not have a return path to the chassis, the reading must be

Figure 1



1.1.2. Leakage current hot check (See [Figure 1](#).)

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a 1.5k Ω , 10 watts resistor, in parallel with a 0.15 μ F capacitors, between each exposed metallic part on the set and a good earth ground such as a water pipe, as shown in [Figure 1](#).
3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 volts RMS. A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks, leakage current must not exceed 1/2 milliampere. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.


2. Warning

2.1. Prevention of Electrostatic Discharge (ESD) to Electrostatic Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatic Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistor-sand semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by electrostatic discharge (ESD).

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static (ESD protected)" can generate electrical charge sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
Caution
Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device).

IMPORTANT SAFETY NOTICE

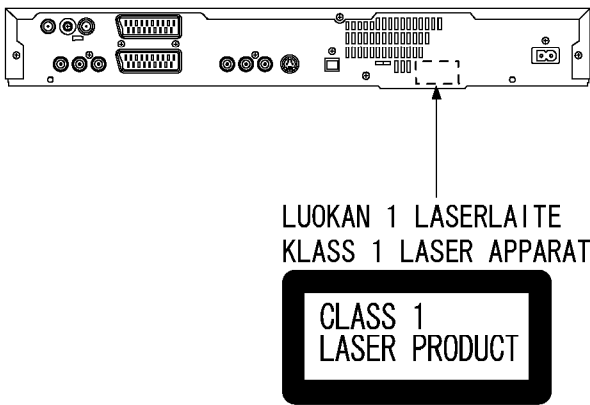
There are special components used in this equipment which are important for safety. These parts are marked by  in the schematic diagrams, Exploded Views and replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

2.2. Precaution of Laser Diode

CAUTION:

This product utilizes a laser diode with the unit turned “on”, invisible laser radiation is emitted from the pickup lens.
Wave length: 662 nm (DVDs)/780 nm (CDs)
Maximum output radiation power from pickup: 100 μ W/VDE
Laser radiation from the pickup lens is safety level, but be sure the followings:

1. Do not disassemble the optical pickup unit, since radiation from exposed laser diode is dangerous.
2. Do not adjust the variable resistor on the pickup unit. It was already adjusted.
3. Do not look at the focus lens using optical instruments.
4. Recommend not to look at pickup lens for a long time.

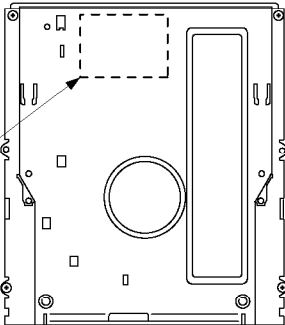


ACHTUNG:

Dieses Produkt enthält eine Laserdiode.
Im eingeschalteten Zustand wird unsichtbare Laserstrahlung von der Lasereinheit abgestrahlt.
Wellenlänge: 662 nm (DVDs)/780 nm (CDs)
Maximale Strahlungsleistung der Lasereinheit: 100 μ W/VDE
Die Strahlung der Lasereinheit ist ungefährlich, wenn folgende Punkte beachtet werden:

1. Die Lasereinheit nicht zerlegen, da die Strahlung an der freigelegten Laserdiode gefährlich ist.
2. Den werkseitig justierten Einstellregler der Lasereinheit nicht verstellen.
3. Nicht mit optischen Instrumenten in die Fokussierlinse blicken.
4. Nicht über längere Zeit in die Fokussierlinse blicken.

DANGER	-VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM. FDA21 CFR/Class IIb
注意	-打开时有可见及不可见激光辐射。避免激光照射。
注意	-ここを触ると可視及び不可視のレーザー光が出ます。ビームを直接見たり、触ったりしないでください。
CAUTION	-CLASS 3B VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO THE BEAM. IEC60825-1:2014/Class 3B
ATTENTION	-RAYONNEMENT LASER VISIBLE ET INVISIBLE. CLASSE 3B. EN CAS D'OUVERTURE, EVITER UNE EXPOSITION AU FAISCEAU.
FORSIGTIG	-SYNLIG OG USYNLIG LASERSTRÅLING KLASSE 3B NÅR LÅGET ER ÅBENT. UNDGÅ AT BLIVE UDSAT FOR STRÅLEN.
VARO	-AVATTAESSA OLET ALTIIN LUOKAN 3B NÄKYVÄÄ JA NÄKYMÄTÖN LASERSTRÄLYÄ. VARO ALTISTUMISTA SÄTEELLE.
WARNING	-KLASS 3B SYNLIG OG ØSYNLIG LASERSTRÅLING NÅR DENNA DEL ÅR ÖPPNAD. UNDVIK EXPONERING FÖR STRÅLEN.
VORSICHT	-SICHTBARE UND UNSICHTBARE LASERSTRÄHLUNG, KLASSE 3B. WENN ABDECKUNG GEÖFFNET, NICHT DEM STRAHL AUSSETZEN.
CAUTION	-VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO THE BEAM. IEC60825-1
ATTENTION	-RAYONNEMENT LASER VISIBLE ET INVISIBLE EN CAS D'OUVERTURE. EXPOSITION DANGEREUSE AU FAISCEAU.
ADVARSEL	-SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING. UNNGÅ EKSPONERING FOR STRÅLING.
VARO!	-AVATTAESSA OLET ALTIIN NÄKYVÄÄ JA NÄKYMÄTÖN LASERSTRÄLYLE. ÄLÄ KATSO SÄTEESEEN.
WARNING	-SYNLIG OG ØSYNLIG LASERSTRÅLING NÅR DENNA DEL ÅR ÖPPNAD. BETRÄKTA EJ STRÅLEN.
VORSICHT	-SICHTBARE UND UNSICHTBARE LASERSTRÄHLUNG, WENN ABDECKUNG GEÖFFNET, NICHT DEM STRAHL AUSSETZEN.
ADVARSEL	-SYNLIG OG USYNLIG LASERSTRÅLING NÅR ÅPNES. UNNGÅ EKSPONERING FOR STRÅLING. VQL1J67



CAUTION!
THIS PRODUCT UTILIZES A LASER.
USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

2.3. Service caution based on legal restrictions

2.3.1. General description about Lead Free Solder (PbF)

The lead free solder has been used in the mounting process of all electrical components on the printed circuit boards used for this equipment in considering the globally environmental conservation.
The normal solder is the alloy of tin (Sn) and lead (Pb). On the other hand, the lead free solder is the alloy mainly consists of tin (Sn), silver (Ag) and Copper (Cu), and the melting point of the lead free solder is higher approx.30 degrees C (86°F) more than that of the normal solder.

Definition of PCB Lead Free Solder being used

The letter of “PbF” is printed either foil side or components side on the PCB using the lead free solder. (See right figure)	PbF
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Service caution for repair work using Lead Free Solder (PbF)

- The lead free solder has to be used when repairing the equipment for which the lead free solder is used.

(Definition: The letter of “PbF” is printed on the PCB using the lead free solder.)

- To put lead free solder, it should be well molten and mixed with the original lead free solder.
- Remove the remaining lead free solder on the PCB cleanly for soldering of the new IC.
- Since the melting point of the lead free solder is higher than that of the normal lead solder, it takes the longer time to melt the lead free solder.
- Use the soldering iron (more than 70W) equipped with the temperature control after setting the temperature at 350±30 degrees C (662±86°F).

Recommended Lead Free Solder (Service Parts Route.)

- The following 3 types of lead free solder are available through the service parts route.
RFKZ03D01K----- (0.3mm 100g Reel)
RFKZ06D01K----- (0.6mm 100g Reel)
RFKZ10D01K----- (1.0mm 100g Reel)

Note

* Ingredient: tin (Sn), 96.5%, silver (Ag) 3.0%, Copper (Cu) 0.5%, Cobalt (Co) / Germanium (Ge) 0.1 to 0.3%

3. Service Navigation

3.1. Service Information

This service manual contains technical information which will allow service personnel's to understand and service this model.

Please place orders using the parts list and not the drawing reference numbers.

If the circuit is changed or modified, this information will be followed by supplement service manual to be filed with original service manual.

1) This service manual does not contain the following information, because of the impossibility of servicing at component level.

- * Schematic Diagram, Block Diagram and P.C.B. layout of RAM/Digital P.C.B. Module.
- * Parts List for individual parts of RAM/Digital P.C.B. Module.
- * Exploded View and Parts List for individual parts of RAM/Digital P.C.B. Module.

2) The following category are recycle module part. Please send them to Central Repair Center.

- * RAM/Digital P.C.B. Module
(ES15EB:RFKNES15EB, ES15EP:RFKNES15EP, ES15EC:RFKNES15EC, ES15EG:RFKNES15EG, ES15EBL:RFKNES15EBL)

3.2. Caution for DivX

Please will always pass the customer "Warning for Customers Who Use the DivX Video-on-Demand content." with the product and get it when you unavoidably exchange EEPROM or P.C.B. including EEPROM (When the product is exchanged, it is the same.).

You must use print attached to service part (EEPROM or P.C.B. including EEPROM) or must use copy of print below as "Warning for Customers who use the DivX Video-on-Demand content."

Information needed without fail for the customer for whom it is used continuing DivX Video-on-Demand Service to "Manual for the customer" is recorded.

Appendix:

- * Parts that memorize user's information are only EEPROM.
- * The registration of Registration Code is possible for half a year up to 6 recorders up to 10 recorders a year.
Replacement of EEPROM or P.C.B. including EEPROM spends one of this.

Registration Code is memorized in EEPROM (RFKFxxxxxx).

Model without VHS: Main P.C.B.

Model with VHS: Digital I/F P.C.B. (Power & DVD I/F/P.C.B.)

If exchange above P.C.B. or EEPROM, new registration Code differ from previous Registration Code will be generated.

In this case if your customer uses DivX Video-on-Demand service, he/she will no longer be able to play any content that he/she purchased under that same registration code.

Therefore your customer will need to obtain and register the new registration code.

*Copy this page and cut on the dotted line and give the lower half to your customer.

Warning for Customers who use the DivX Video-on-Demand content.

1. The registration code has been changed for the repair of the product or the product exchange.
2. Obtain and register a new registration code, otherwise you will no longer be able to play DivX Video-on-Demand content.
3. Follow the procedure on the DivX Video-on-Demand web site to register at
<http://vod.divx.com/>

* If you do not use the DivX Video-on-Demand content, please ignore this warning.

4. Specifications

Power supply	AC220-240 V, 50 Hz	Compression Method *1 Total number of recognizable file including MP3, JPEG, DivX and other type of files is 4000.	DVD (DivX), CD (DivX)	
Power consumption	Approx. 22 W		DivX 3.11, 4.x, 5.x GMC (Global Motion Compensation) is not supported.	
Power consumption in standby mode	Approx. 2 W (Power Save mode)		DVD (DivX), CD (DivX) Common Items	
Recording system	DVD-RAM: DVD Video Recording format		Maximum number of folders: 300 Recognizable folders per disc on this unit (including the root folder)	
	DVD-R: DVD-Video format		Maximum number of DivX files: 200 Recognizable DivX files per disc on this unit *1	
	DVD-R DL (Dual Layer): DVD-Video format		DVD (MP3), CD (MP3)	
Optical pick-up	DVD-RW: DVD-Video format +R		Format : ISO9660 level1 or 2 (except for extended formats), Joliet	
	+R DL (Double Layer) +RW		Compatible compression rate : 32kbps ~ 320kbps Compatible sampling rate : 16kHz, 22.05kHz, 24kHz, 32kHz, 44.1kHz, 48kHz This unit is not compatible with ID3 tags.	
Recordable discs	DVD-RAM		DVD (JPEG), CD (JPEG)	
	Ver.2.0		Format : ISO9660 level1 or 2 (except for extended formats), Joliet	
	Ver.2.1/3X-SPEED DVD-RAM Revision 1.0		Compatible pixels : between 34 × 34 and 6144 × 4096 pixels	
	Ver.2.2/5X-SPEED DVD-RAM Revision 2.0		Sub Sampling 4:2:2 or 4:2:0 This unit is not compatible with MOTION JPEG.	
	DVD-R		DVD (MP3), CD (MP3), DVD (JPEG), CD (JPEG) Common Items	
	for General Ver.2.0		Maximum number of folders : 300 Recognizable folders per disc on this unit (including the root folder)	
	for General Ver.2.0/4X-SPEED DVD-R Revision 1.0		Maximum number of MP3 files : 3000 Recognizable MP3 files per disc on this unit *1	
	for General Ver.2.x/8X-SPEED DVD-R Revision 3.0	Maximum number of JPEG files : 3000 Recognizable JPEG files per disc on this unit *1		
	for General Ver.2.x/16X-SPEED DVD-R Revision 6.0	SVCD		
	for DL Ver.3.0	Format: IEC62107		
	for DL Ver.3.x/4X-SPEED DVD-R for DL Revision 1.0	This unit is not compatible with "Chaoji VCD" available on the market including CVD, DVCD and SVCD that do not conform to IEC62107.		
	DVD-RW			
	Ver.1.1			
	Ver.1.x/2X-SPEED DVD-RW Revision 1.0			
	Ver.1.x/4X-SPEED DVD-RW Revision. 2.0			
Ver.1.x/6X-SPEED DVD-RW Revision 3.0				
+R				
Ver.1.0				
Ver.1.1				
Ver.1.2				
Ver.1.3				
for DL Ver.1.0				
+RW				
Ver.1.1				
Ver.1.2/4X-SPEED				
Quick Start for Recording (Quick Start: ON)	1 Sec. Quick Start for Recording on DVD-RAM* *From the power off state, for recording on DVD-RAM starts about 1 second after first pressing the power button and then sequentially pressing the REC button (Quick Start Mode).	Video system		
		TV system	ES15EG, ES15EC ES15EP	SECAM(Only Input)/PAL system, 625 lines, 50 fields/NTSC system, 525 lines, 60 fields
Recording time	Max. 8 hours (using 4.7 GB disc) XP: Apperox. 1 hour SP: Apperox. 2 hours LP: Apperox. 4 hours EP: Apperox. 6 hours/8 hours		ES15EB,ES15EBL	PAL system, 625 lines, 50 fields /NTSC system, 525 lines, 60 fields
		Recording system	MPEG2 (Hybrid VBR)	
Region number	Region No.2	Video Input	Video In: (*SECAM/PAL /NTSC)	AV1/AV2(21pin) x 2, AV3(pin jack) x 2 1.0Vp-p ; 75Ω
		*Note: ES10EG/EC/EP Only	S-Video In: (*SECAM/PAL/NTSC)	AV2(21pin) x 1, AV3(S connector) x 1 Y:1.0Vp-p ; 75Ω, C:0.3Vp-p ; 75Ω
Playable discs	DVD-RAM: DVD Video Recording format DVD-R: DVD-Video format, MP3, JPEG, DivX DVD-R DL (Dual Layer): DVD-Video format DVD-RW: DVD-Video format, DVD Video Recording format +R +R DL (Double Layer) +RW DVD-Video DVD-Audio CD-Audio (CD-DA) Video CD CD-R/CD-RW (CD-DA, Video CD, SVCD, MP3, JPEG, DivX formatted discs) SVCD	Video Output	Video Out: (PAL/NTSC)	AV1/AV2 (21pin) x 2, LINE (pin jack) x 1, 1.0Vp-p ; 75Ω
		S-Video Out: (PAL/NTSC)	AV1 (21pin) x 1, S connector x 1 Y:1.0Vp-p ; 75Ω, C:0.3Vp-p ; 75Ω	
		RGB Out: (PAL/NTSC)	AV1 (21pin) x 1, 0.7Vp-p ; 75Ω	
		Component video out: (NTSC 480P/480i) (PAL 576P/576i)	Y: 1.0Vp-p ; 75Ω (pin jack) P _s : 0.7Vp-p ; 75Ω (pin jack) P _R : 0.7Vp-p ; 75Ω (pin jack)	

Antenna reception system	ES15EG, ES15EC	
	CCIR (PAL-BGH) (SECAM-BG)	VHF: CH E2 - CH E12, CH A - CH H2 (For Italy) UHF: CH 21 - CH 69 CATV: CH S01 - CH S05(S1-S3), CH S1 - CH S20(M1-U10), CH S21 - CH S41
	France (SECAM-L,L') ES15EC only	VHF: CH 2 - CH 10 UHF: CH 21 - CH 69 CATV: CH B - CH Q (100.5-299.5MHz), CH S21 - CH S41 (299.5-467.25MHz)
	ES15EB, ES15EBL	
	PAL-I	VHF: CH 4 - CH 13, CH A - CH J(For ES15EBL) UHF: CH 21 - CH 68
	ES15EP	
	OIRT (PAL-DK) (SECAM-DKK1)	VHF: CH R1 - CH R12 UHF: CH 21 - CH 69 CATV: CH 44MHz - 470MHz
	CCIR (PAL-BGH) (SECAM-BG)	VHF: CH E2 - CH E12 UHF: CH E21 - CH E69 CATV: CH S01 - CH S05, CH M1 - CH M10, CH U1 - CH U10, CH S21 - CH S41
South Africa(PAL-I)	VHF: CH 4 - CH 13 UHF: CH 21 - CH 68	
RF Converter Output	Not provided	
Audio system		
Recording system	Dolby Digital 2ch	
Audio Input	AV1/AV2 (21pin) x 2, AV3 (pin jack) x 1 Standard input: 0.5 Vrms Full scale: 2.0 Vrms at 1KHz Input impedance: More than 10KΩ	
Audio Output	AV1/AV2(21pin) x 2, LINE(pin jack) x 1 Standard output: 0.5 Vrms Full scale: 2.0 Vrms at 1KHz Output impedance: Less than 1.0KΩ	
DV Input	IEEE 1394 Standard, 4pin	
Digital Output	Digital Audio Optical Output Connector (PCM,Dolby Digital,DTS,MPEG)	
Dimensions	Approx. 430 (W) x 58 (H) x 316 (D) mm	
Mass	Approx. 3.2 kg	
Operating temperature	5°C - 40°C	
Operating humidity range	10 %-80 % RH (no condensation)	
LASER Specification (Class I LASER Product)		
Wave length	780 nm(CDs), 662 nm(DVDs)	
Laser power	No hazardous radiation is emitted with the safety protection.	
Solder	These models use lead free solder (PbF).	

Notes : **Mass and dimensions are approximate.**
Specifications are subject to change without notice.

5. New Feature

5.1. About DivX

5.1.1. General

DivX is a new video compressing format that is applied MPEG4 technology to improve image quality and the compressibility, and it is developed by the DivXNetworks, Inc., Video file of high resolution and the high picture quality can be made though it is a high compressibility.

DivX codec is necessary for converting video to DivX file and .playback files made.

5.1.2. Operating Instructions about DivX Video-on-Demand Content

DivX Video-on-Demand (VOD) content is encrypted for copyright protection. In order to play DivX VOD content on this unit, you first need to register the unit.

Follow the on line instructions for purchasing DivX VOD content to enter unit's registration code and register unit. Visit www.divx.com/vod for more information.

Display unit's registration code.



- **We recommend that you make a note of this code for future reference.**
- **After playing DivX VOD content for first time, another registration code is then displayed in “DivX Registration”. Do not use this registration code to purchase DivX VOD content. If you use this code to purchase DivX VOD content, and then play content on this unit, you will no longer be able to play any content that you purchased using previous code.**
- If you purchase DivX VOD content using a registration code different from this unit’s code, you will not be able to play this content. (“Authorization Error” is displayed.)

Regarding DivX content that can only be played a set number of times

Some DivX VOD content can only be played a set number of times.

When you play this content, remaining number of plays is displayed. You cannot play this content when number of remaining plays is zero. (“Rental Expired” is displayed.)

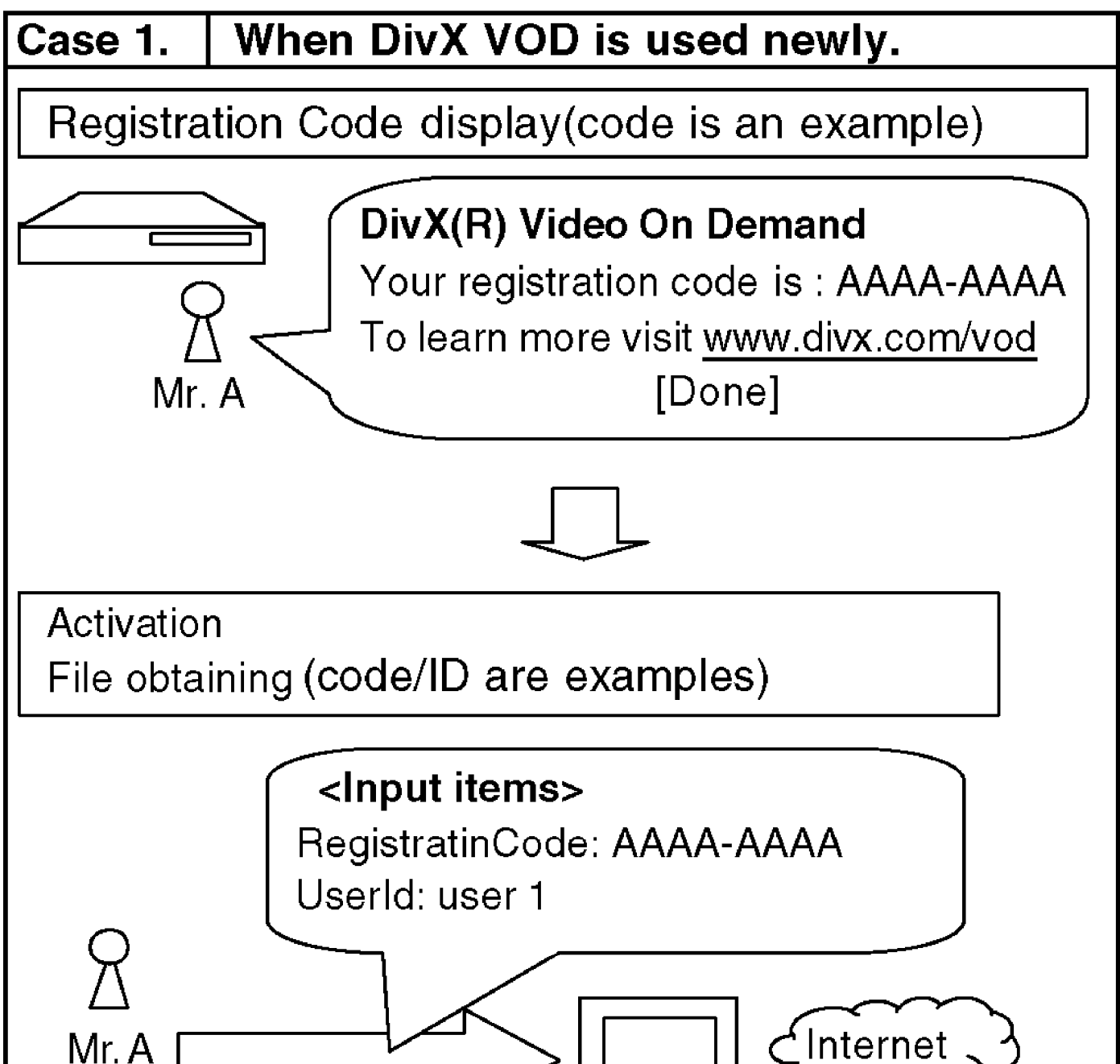
When playing this content

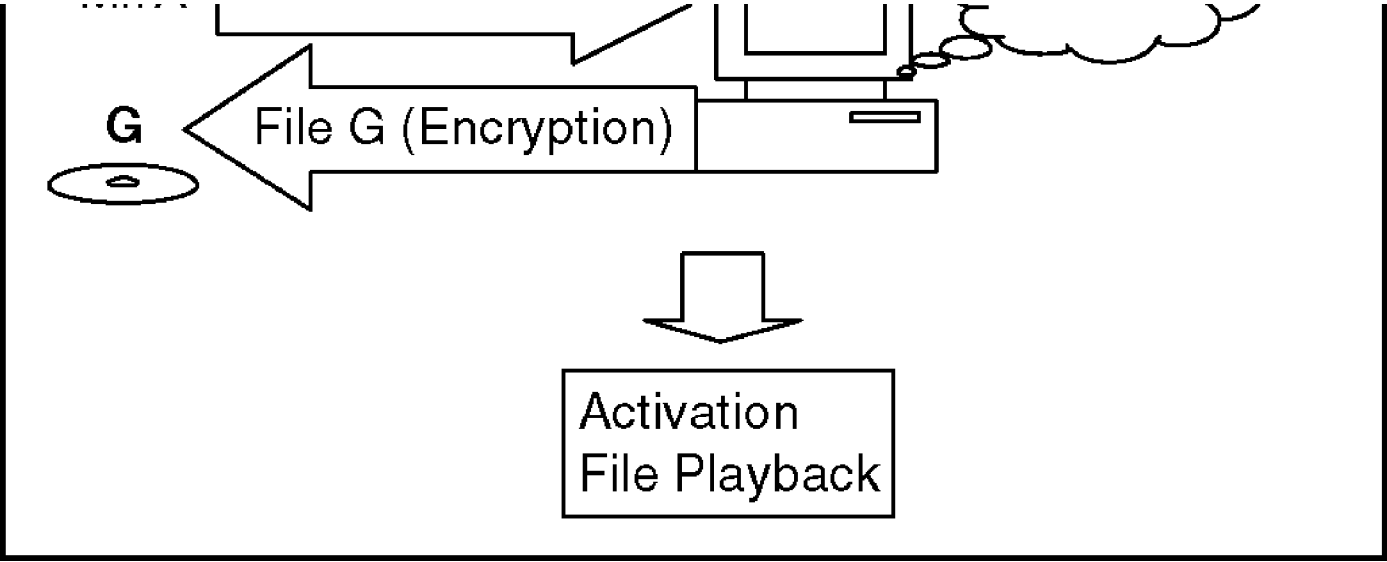
- Number of remaining plays is reduced by one if you press [POWER]

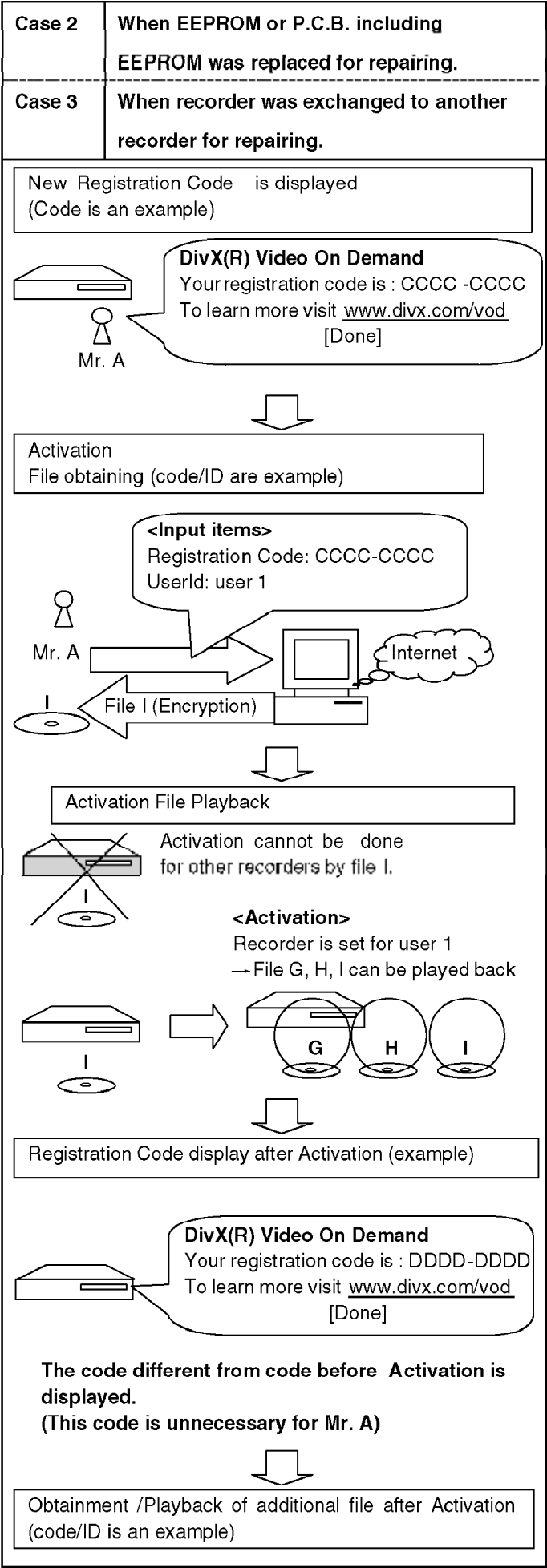
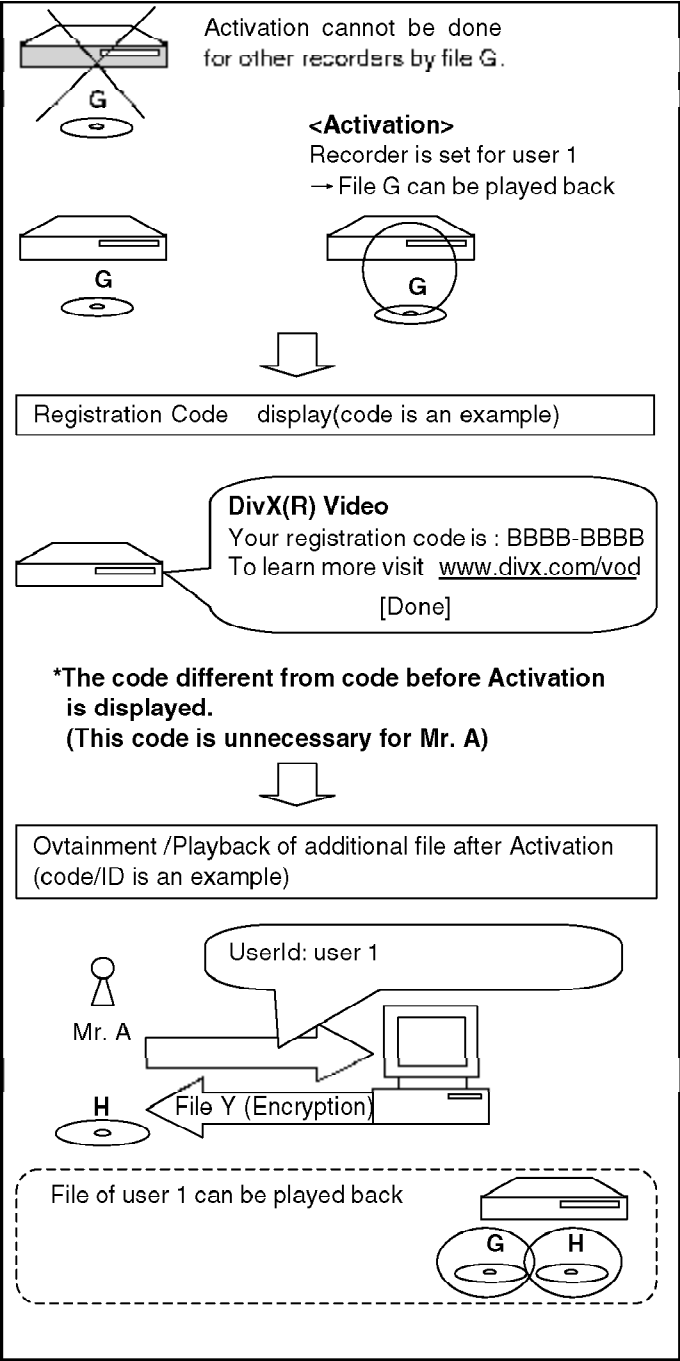
- you press [POWER].
 - you press [STOP].
 - you press [◀◀ SKIP], [◀◀ SLOW/SEARCH] or [▶▶ SLOW/SEARCH] etc. and arrive at another content or start of content being played.
 - scheduled recording starts on HDD.
 - you press [DRIVE SELECT] to change drive.
- * Resume functions do not work.

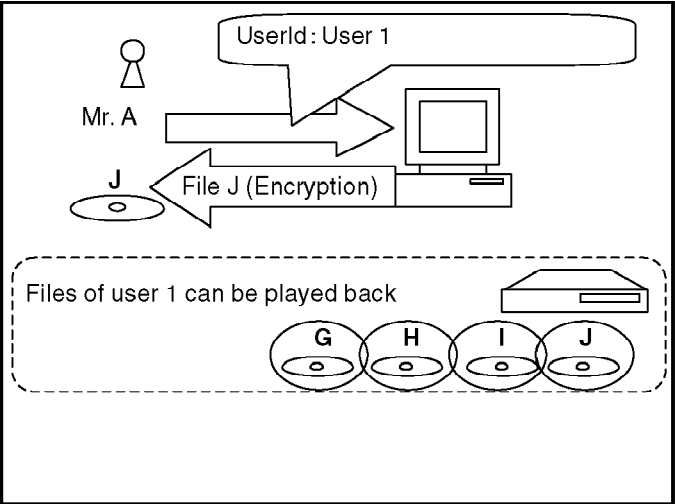
Typical Playback procedure of DivX VOD (Video On Demand)

Case 1	When DivX VOD is used newly.
Case 2	When EEPROM or P.C.B. including EEPROM was replaced for repairing.
Case 3	When recorder was exchanged to another recorder for repairing.
Case 4	When customer own second recorder
Case 5	When owner of recorder was changed to another.



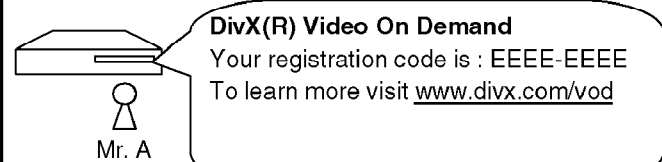




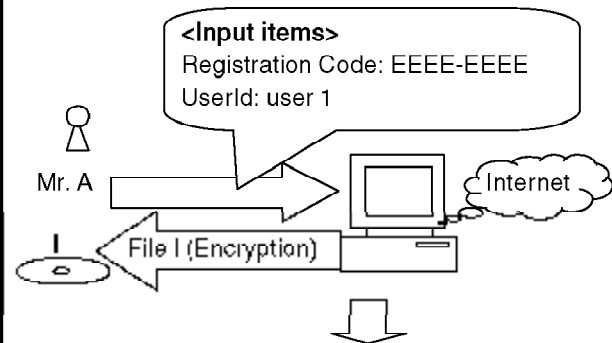


Case 4 When customer own second recorder

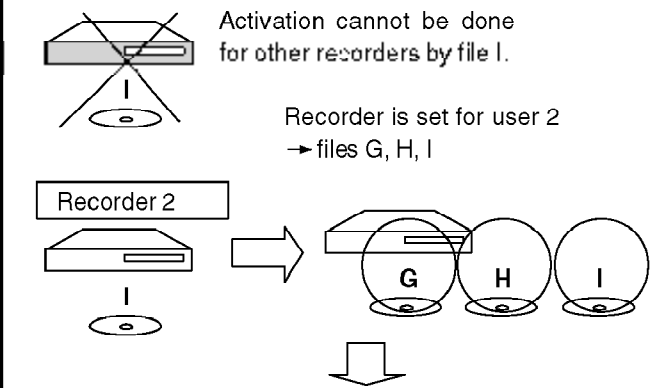
Registration Code display of second recorder (code is an example)



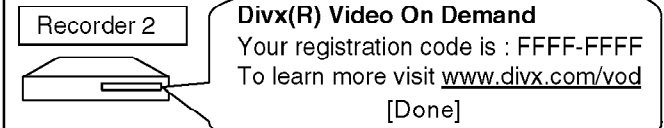
Activation
File obtaining (code/ID are example)



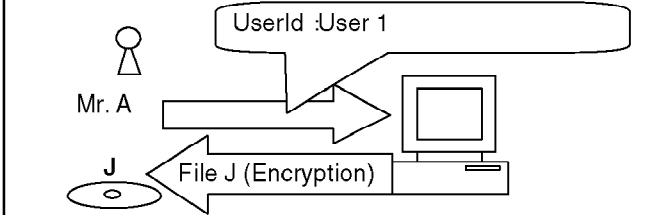
Activation
File Playback



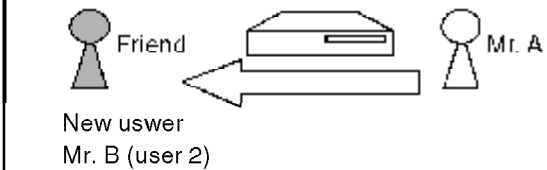
Registration Code display after Activation (example)



Obtainment /Playback of additional file after Activation (code/ID is an example)



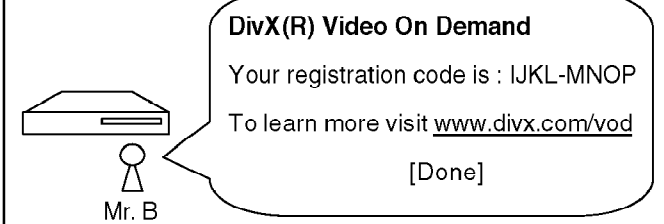
Case 5 When owner of recorder was changed to another.



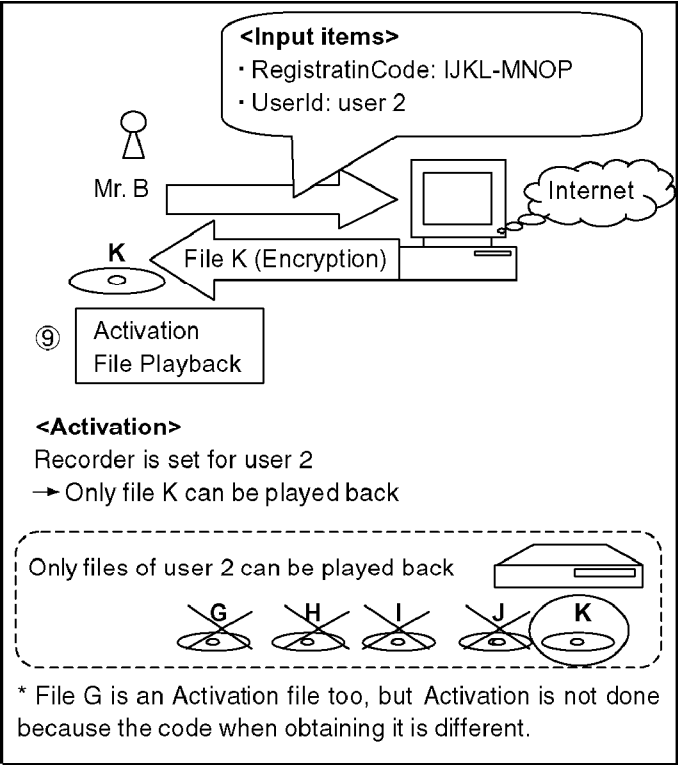
It is necessary to update information on the recorder

⑦ Activation

Registration Code is displayed



⑧ Activation
File obtaining (code/ID are example)



File kind

(There are two kind of Activation files as follows too.)

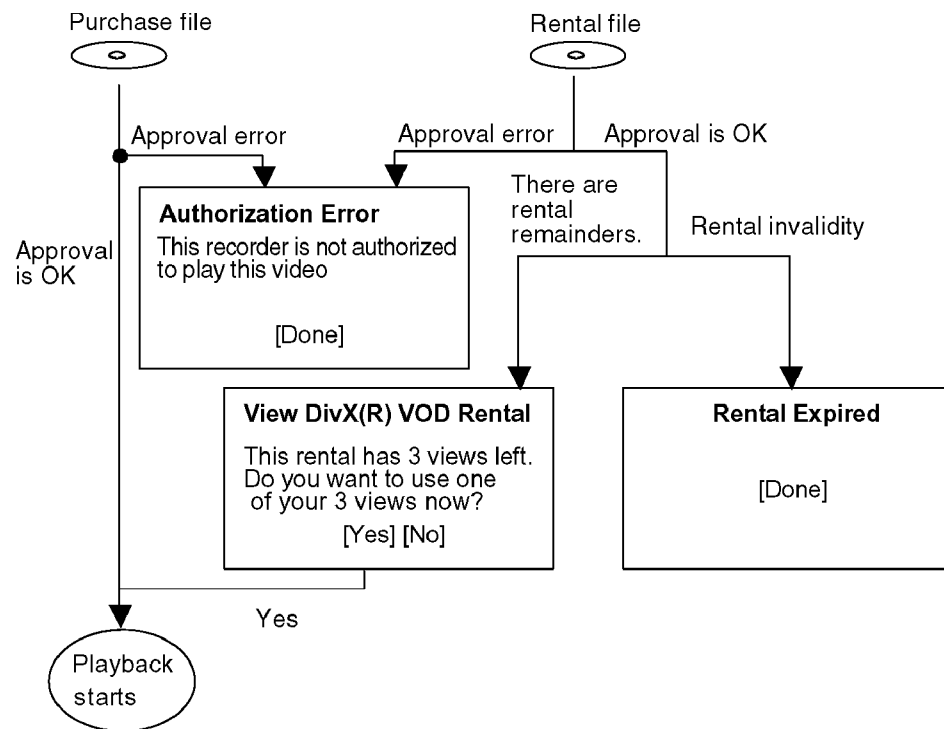
- Rental : There is a playback limitation
- Purchase : Unrestricted

Also there is next file as DRM files besides the above-mentioned.

•**Base:** It is not necessary to approve though the contents is being encoded. → If it is recorder/player for DRM, any can play back. (It is the same as usual DivX file when seeing from user.)

Screen shift (Error display)

Whether approval is OK or not: Whether the recorder is corresponding to User information on the file or not



5.1.3. About DivX DRM

Divx file includes file to which DRM(Digital Right Management) is applied and file not applied.

This item is a content that relates only in treating file to which DRM is applied.

1. Registration Code display function
2. User's registration and approval function
3. Rental management function

1) Registration Code display function

Registration Code is alphanumeric character sequence 8bytes inputted as recorder information, in case a use purchases or rent a DivX DRM file in a network.

Registration code is a character sequence generated at random, and differs in each recorder. Moreover, Registration code is updated by new user authentication ever if same recorder.

2) User's registration and approval function

- Only one user can register for one recorder. If user's registration is not done with the recorder, DivX file cannot be played back.
- User's registration is performed only when a DivX DRM file is first chosen by recorder
- DivX DRM file that can perform user's registration is only a file that is registered Registration Code and purchased or rented.
- User authentication is performed whenever DivX DRM file is played back.
Error message is displayed when failing in user's registration and approval.

3) Rental management function

There are purchase file without registration of number of playback and rental files with registration of number of playback as Divx file. Number of playback of rental file is counted by the recorder.

When rental file is played, remaining number of times that can be played back will be shown to users, recorder requests users to input yes or no.

Following specifications have been installed for the rental files in the purpose to clarify the count condition of number of times of playback.

- Conditions on counting number of times of play.
 1. When a file was opened successfully. (At the time of playback start)
 2. When you have done review operation from the start. (Skip to file head)
 - At this time, remaining number of times that can be played back and confirmation message [Do you play really?] are displayed.
 - When the playback point has been skipped to the top of title, number of playback is not counted if the top of title was not recognized.
 - Even if the power failure occurs after start of playback of rental file, number of times of playback counted at start of the playback is held as it is. (Though playback stops by power failure, the number of times of playback is not counted.)

When it has reached head of title, the playback is ended, and screen becomes DivX menu (There is no resume) and then cursor is located on title that has been played back.

Then if the same file was continuously played back, it begins to playback from the file head.

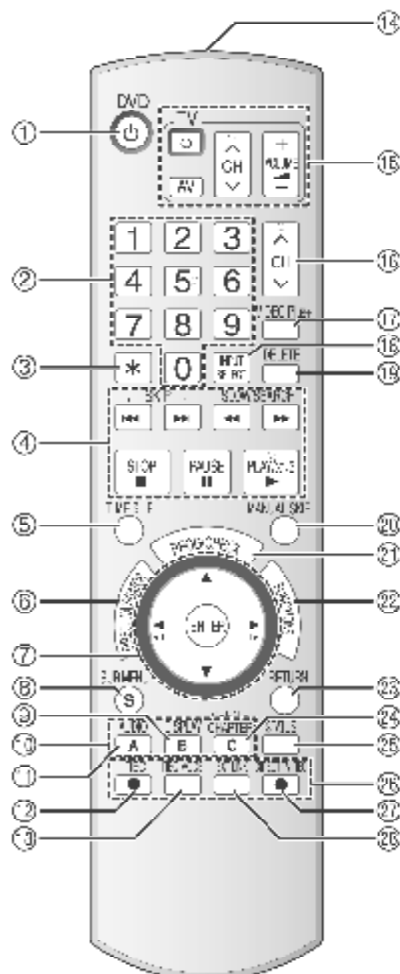
Note:

Above mentioned stored user information and number of times of playback are not erased by update of firmware or by initialization by test mode.

6. Location of Controls and Components

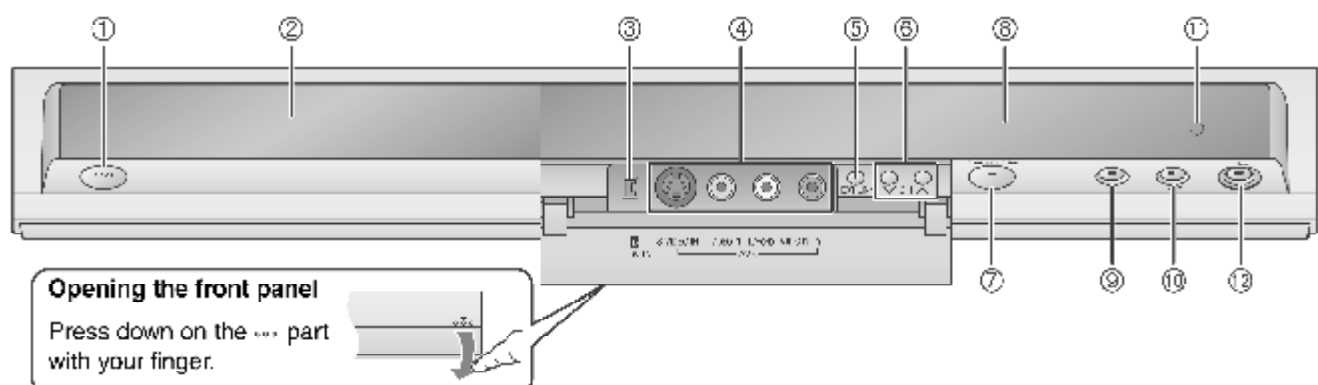
Followings are the Location of Controls and Components for DMR-ES15EB as a sample.
For other models, refer to each Operation Instructions.

Remote control



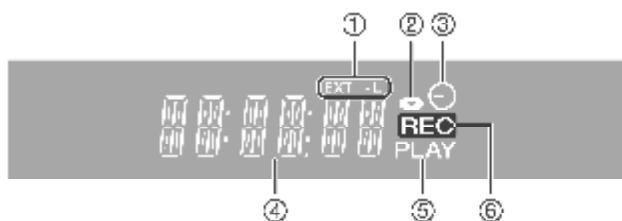
- ① Turn the unit on/off
- ② Select channels and title numbers etc./Enter numbers
- ③ Cancel
- ④ Basic operations for recording and play
- ⑤ Skip the specified time
- ⑥ Show Direct Navigator/Top menu
- ⑦ Selection/Enter, Frame-by-frame
- ⑧ Show sub menu
- ⑨ Show on-screen menu
- ⑩ Manual tuning operation
- ⑪ Select Audio
- ⑫ Start recording
- ⑬ Change recording mode
- ⑭ Transmit the remote control signal
- ⑮ Television operations
- ⑯ Channel select
- ⑰ Show VIDEO Plus+ screen
- ⑱ Input select (AV1, AV2, AV3 or DV)
- ⑲ Delete items
- ⑳ Skip 30 seconds forward
- ㉑ Show timer recording programme screen
- ㉒ Show FUNCTIONS window
- ㉓ Return to previous screen
- ㉔ Create chapter
- ㉕ Show status messages
- ㉖ Recording function
- ㉗ Direct TV recording
- ㉘ Linked timer recordings with external equipment

Main unit



- ① **Standby/on switch (I/O)**
Press to switch the unit from on to standby mode or vice versa. In standby mode, the unit is still consuming a small amount of power.
- ② Disc tray
- ③ Connection for digital video (DV) camcorder
- ④ Connection for camcorder etc.
- ⑤ Linked timer recordings with external equipment
- ⑥ Channel select
- ⑦ Open/close disc tray
- ⑧ Display (→ below)
- ⑨ Stop
- ⑩ Start play
- ⑪ Remote control signal sensor
- ⑫ Start recording / Specify the time to stop recording

The unit's display



- ① Linked timer recordings with external equipment indicator
- ② Disc indicator
• This indicator lights up when a disc that is supported by this unit is inserted.
- ③ Timer recording indicator
- ④ Main display section
- ⑤ Playing indicator
- ⑥ Recording indicator

7. Operation Instructions

7.1. Taking out the Disc from DVD-Drive Unit when the Disc cannot be ejected by OPEN/CLOSE button

7.1.1. Forcible Disc Eject

7.1.1.1. When the power can be turned off.

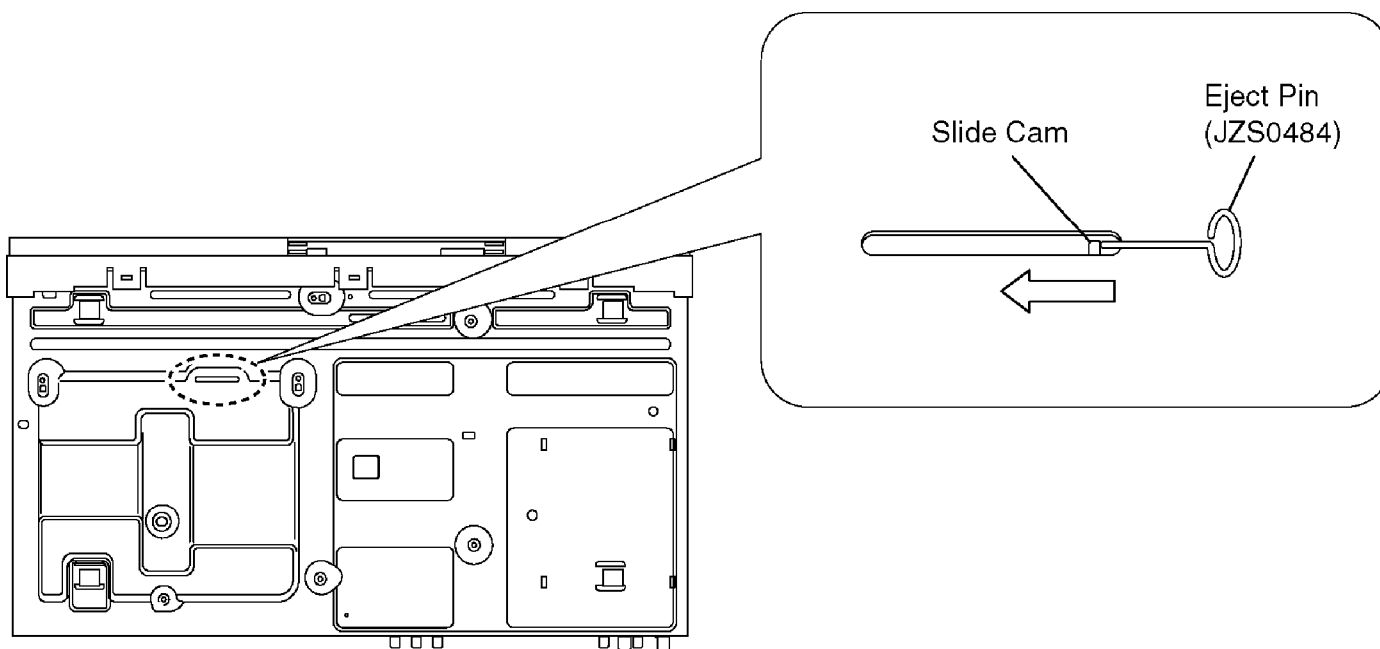
1. Turn off the power and press [STOP] [CH UP] keys on the front panel simultaneously for 5 seconds.

7.1.1.2. When the power can not be turned off.

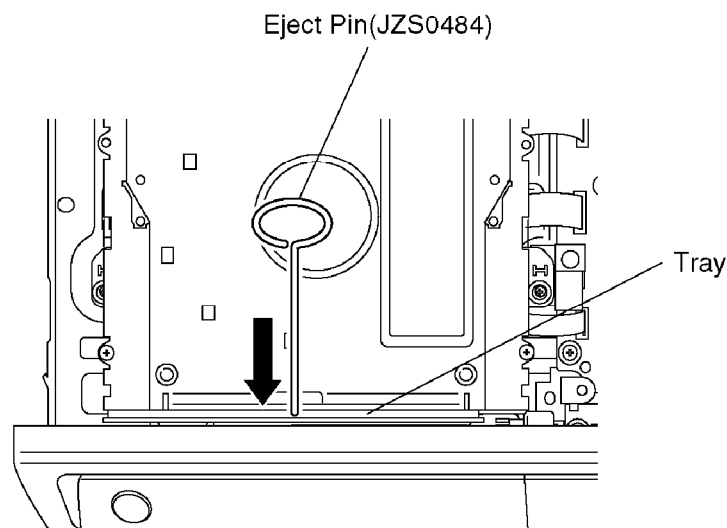
1. Press [POWER] key on the front panel for over 10 seconds to turn off the power forcibly, and press [STOP] [CH UP] keys on the front panel simultaneously for 5 seconds.

7.1.2. When the Forcible Disc Eject can not be done.

1. Turn off the power and pull out AC cord.
2. Remove the Top Case.
3. Put deck so that bottom can be seen.
4. Slide SLIDE CAM by Eject Pin (JZJ0484) or minus screw driver (small) in the direction of arrow to eject tray slightly.



5. Put deck upward, and push out Tray by Eject Pin (JZS0484) or minus screw driver (small).



8. Service Mode

8.1. Self-Diagnosis and Special Mode Setting

8.1.1. Self-Diagnosis Functions

Self-Diagnosis Function provides information for errors to service personnel by “Self-Diagnosis Display” when any error has occurred.

U**, H** and F** are stored in memory and held.

You can check latest error code by transmitting [0] [1] of Remote Controller in Service Mode. Automatic Display on FL will be cancelled when the power is turned off or AC input is turned off during self-diagnosis display is ON.

Error Code	Diagnosis contents	Description	Monitor Display	Automatic FL display
U30	Remote control code error	Display appears when main unit and remote controller codes are not matched.	No display	<div style="border: 1px solid black; padding: 5px; text-align: center;">DVD *</div> <p>“*” is remote controller code of the main unit. Display for 5 seconds.</p>
U59	Abnormal inner temperature detected	Display appears when the drive temperature exceeds 70°C. The power is turned off forcibly. For 30 minutes after this, all key entries are disabled. (Fan motor operates at the highest speed for the first 5 minutes. For the remaining 25 minutes, fan motor is also stopped.) The event is saved in memory as well.	No display	<div style="border: 1px solid black; padding: 5px; text-align: center;">U59</div> <p>“U59 is displayed for 30 minutes.</p>
U61	<p>The unit is carrying out its recovery process.</p> <p>(with no disc in the disc tray)</p>	<p>* The unit detected an error while recording or playing with no disc in the disc tray. The unit is carrying out its recovery process. This process restores the unit to normal operation. The unit is not broken. Wait until the message disappears.</p>	No display	<div style="border: 1px solid black; padding: 5px; text-align: center;">U61</div>

Error Code	Diagnosis contents	Description	Monitor Display	Automatic FL display
U88	The unit is carrying out its recovery process. (with a disc in the disc tray)	<ul style="list-style-type: none"> The unit detected an error while recording or playing with a disc in the disc tray. The unit is carrying out its recovery process. This process restores the unit to normal operation. The unit is not broken. Wait until the message disappears. 	No display	<div>U88</div>
U99	Hang-up	Displayed when communication error has occurred between Main microprocessor and Timer microprocessor.	No display	<div>U99</div> <p>Displayed is left until the [POWER] key is pressed.</p>
F00	No error information	Initial setting for error code in memory (Error code Initialization is possible with error code initialization and main unit initialization.)	No display	No display
F58	Drive hardware error	When drive unit error is detected, the event is saved in memory.	No display	No display
F34	Initialization error when main microprocessor is started up for program recording	When initialization error is detected after starting up main microprocessor for program recording, the power is turned off automatically. The event is saved in memory.	No display	No display
UNSUPPORTED	Unsupported disc error	<ul style="list-style-type: none"> *An unsupported format disc was played, although the drive starts normally. *The data format is not supported, although the media type is supported. *Exceptionally in case of the disc is dirty. 	"This disc is incompatible."	<div>UNSUP</div> <div>↓</div> <div>PORT</div> <p>Display for 5 seconds.</p>
NO READ	Disc read error	<ul style="list-style-type: none"> *A disc is flawed or dirty. *A poor quality failed to start. *The track information could not be read. 	"Cannot read. Please check the disc."	<div>NOREAD</div>
HARD ERR	Drive error	The drive detected a hard error.	"DVD drive error."	<p>Display for 5 seconds.</p> <div>HARD</div> <div>↓</div> <div>ERR</div>

Error Code	Diagnosis contents	Description	Monitor Display	Automatic FL display
PLEASE WAIT	Restoration operation	Since the power cord fell out during a power failure or operation, it is under restoration operation. *It will OK, if a display disappears automatically. If a display does not disappear, there is the possibility that defective Digital P.C.B. / RAM drive.	No display	<div>PLEASE</div> <div>↓</div> <div>WAIT</div>
	Unit is in termination process	Unit is in termination process now. “BYE” is displayed and power will be turned off. In case “Quick Start” of setup menu is ON, it is displayed in restoration operation for AC off.		
UNFORMAT	Unformatted disc error	You have inserted an unformatted DVD-RAM or DVD-RW that is unformatted or recorded on other equipment.	<div>Format</div> <div>This disc is not formatted properly.</div> <div>Format the disc in DISK MANAGEMENT?</div>	<div>UNFOR</div> <div>↓</div> <div>MAT</div>

8.1.2. Special Modes Setting

Item		FL display	Key operation
Mode name	Description		Front Key
TEST Mode	*All the main unit's parameters (include tuner) are initialized.	<div>TM AV1</div>	Press [STOP], [CH UP] and [OPEN/CLOSE] keys simultaneously for five seconds when power is off.
Rating password	The audiovisual level setting password is initialized to “Level 8”.	<div>INIT</div>	Open the tray, and press [REC] and [PLAY] simultaneously for 5 seconds.
Service Mode	Setting every kind of modes for servicing. *Details are described in “8.1.3. Service Mode at a glance”.	<div>SERV</div>	When the power is off, press [CH UP], [OPEN/CLOSE] and [REC] keys simultaneously for 5 seconds.

Item		FL display	Key operation
Mode name	Description		Front Key
Forced disc eject	<p>Removing a disc that cannot be ejected.</p> <p>The tray will open and unit will shift to P-off mode.</p> <p>*When Timer REC is ON or EXT-LINK is ON, execute " Forced disc eject " after releasing Timer REC or EXT-LINK.</p> <p>*This command is not effective during "Child lock" is ON.</p> <p>While Demonstration Lock is being set, this Forced disc eject function is not accepted.</p> <div>If this command was executed while TIMER REC is being set, TIMER REC setting will turn to OFF.</div>	<p>The display before execution leaves.</p> <div>*****</div>	<p>When the power is off, press [STOP] and [CH UP] keys simultaneously for 5 seconds.</p>
Child lock/unlock	Set or release "Child Lock".	<div>X HOLD</div>	<p>Press [ENTER] and [RETURN] by remote controller simultaneously until [X-HOLD] is displayed.</p>
NTSC/PAL system select	To switch PAL/NTSC alternately.	<p>The display before execution leaves.</p> <div>*****</div>	<p>While the power is on (E-E mode), press [STOP] and [OPEN/CLOSE] simultaneously for 5 seconds.</p>
Forced power-off	<p>When the power button is not effective while power is ON, turn off the power forcibly.</p> <p>*When Timer REC is ON or EXT-LINK is ON, execute "Forced Power-off" after releasing Timer REC or EXT-LINK.</p>	Display in P-off mode.	<p>Press [Power] key over than 10 seconds.</p>

Item		FL display	Key operation
Mode name	Description		Front Key
Demonstration lock/unlock	Ejection of the disc is prohibited. The lock setting is effective until unlocking the tray and not released by “Main unit initialization” of service mode.	*When lock the tray. <div>LOCK</div> “LOCK” is displayed for 3 seconds.	When the power is on, press [STOP] and [POWER] keys simultaneously for 5 seconds.
		*When unlock the tray. <div>UNLOCK</div> “UNLOCK” is displayed for 3 seconds.	When the power is on, press [STOP] and [POWER] keys simultaneously for 5 seconds.
		*When press OPEN/CLOSE key while the tray being locked. <div>LOCK</div> Display “LOCK” for 3 seconds.	Press [OPEN/CLOSE] key while the tray being locked.
ATP re-execution	Re-execute ATP.	Display at ATP executing. <div>*****</div>	When the power is on (E-E mode), press [CH UP] and [CH DOWN] simultaneously for 5 seconds.
Progressive initialization	The progressive setting is initialized to Interlace.	The display before execution leaves. <div>*****</div>	When the power is on (E-E mode), press [STOP] and [PLAY] simultaneously for 5 seconds.

8.1.3. Service Modes at a glance

Service mode setting: While the power is off, press REC, CH UP and OPEN / CLOSE simultaneously for five seconds.

Item		FL display	Key operation
Mode name	Description		(Remote controller key)
Release Items	Item of Service Mode executing is cancelled.	SERV	Press [0] [0] or [Return] in service mode.
Error Code Display	Last Error Code of U/H/F held by Timer is displayed on FL. *Details are described in “8.1.1. Self-Diagnosis Functions”.	<div>♣ □ □</div> <p>* ♣ shows U/H/F. □ □ shows number.</p> <p>If any error history dose not exist, [F00] is displayed.</p>	Press [0] [1] in service mode
ROM Version Display	1. Region code (displayed for 5 sec.) 2. Main firm version (displayed for 5 sec.) 3. Timer firm version (displayed for 5 sec.) 4. Drive firm version (displayed for 5 sec.) 5. ROM correction version (left displayed)	1. NO * 2. ***** 3. ***** 4. ***** 5. *** <p>“□ ” are version displays.</p>	Press [0] [2] in service mode
White Picture Output	White picture is output as component Output from AV Decoder. *White picture (Saturation rate : 100%) *It is enable to switch Interlace/Progressive by “I/P switch: [1] [4]”	*Initial mode is “Interlace”. WHIT I	Press [1] [1] in service mode.
		Switch Interlace/Progressive WHIT	Press [1] [4] in White Picture Output mode. *I/P are switched alternately.
Magenta Picture Output	Magenta picture is output with Component Output from AV Decoder. *Magenta picture (Saturation rate: 100%) *It is enable to switch Interlace/Progressive by “I/P switch: [1] [4]”	*Initial mode is “Interlace”. MAGE I	Press [1] [2] in service mode.
		Switch Interlace/Progressive MAGE	Press [1] [4] in Magenta Picture Output mode. *I/P are switched alternately.

Item		FL display	Key operation (Remote controller key)
Mode name	Description		
RTSC Return in XP (A & V)	AV1 input signal is encoded (XP), decoded (XP) and output decoded signal to external without DISC recording and DISC playback.	Initial mode: EE2/ Interlace/ XP/ Audio 48kHz <div>EE2</div>	Press [1] [3] in service mode.
		Switch Interlace/ Progressive <div>EE2P48</div>	Press [1] [4] in RTSC Return XP mode. *I/P are switched alternately.
		Audio 44.1 kHz/ 48 kHz Switch <div>EE2P44</div>	Press [2] [4] in RTSC Return XP mode. *48 kHz / 44.1 kHz are switched alternately.
I/P Switch	Switch Interlace and Progressive in EE mode. *Initial setting is “Interlace”. *This command is effective during executing “White Picture Output”, “Magenta Picture Output” and “RTSC Return in XP (A & V)” modes.	Initial mode is Interlace <div>SERV P</div> Switch Interlace/ Progressive <div>SERV I</div>	Press [1] [4] in I/P Switch mode. *I/P are switched alternately.
Audio Mute (XTMUTE)	Check whether mute is applied normally by the timer microprocessor.	<div>T MUTE</div>	Press [2] [1] in service mode.
Audio Mute (XDMUTE)	Check whether mute is applied normally by the Digital P.C.B..	<div>D MUTE</div>	Press [2] [2] in service mode.
Audio Pattern Output	The audio pattern stored in the internal memory is output (Lch: 1kHz/-18dB) (Rch: 400Hz/-18dB) *Audio sound clock switching operation of DAC can be confirmed by sub command [2] [4].	Initial mode (Audio 48kHz) <div>AU 48</div>	Press [2] [3] in service mode.
		Audio 44.1kHz/48kHz switching <div>AU 44</div>	Press [2] [4] in Audio Pattern Output mode. *48 kHz / 44.1 kHz are switched alternately.
Laser Used Time Indiction	Check laser used time (hours) of drive.	<div>*</div> ● (****) is the used time display in hour. ● Laser used time of DVD / CD in Playback/ Recording mode is counted.	Press [4] [1] in service mode.

Item		FL display	Key operation
Mode name	Description		(Remote controller key)
Delete the Laser Used Time	Laser used time stored in the memory of the unit is deleted.	CLR	Press [9] [5] in service mode.
RAM Drive Last Error	RAM Drive error code display. *For details about the drive error code, refer to the Service Manual for the specific RAM Drive.	<p>1. Error Number is displayed for 5 seconds.</p> <p>NO **</p> <p>2. Time when the error has occurred is displayed for 5 seconds.</p> <p>DDhhmm</p> <p>DD: Day hh: Hour mm: Minute</p> <p>3. Last Drive Error (1/2) is displayed for 5 seconds.</p> <p>*****</p> <p>4. Last Drive Error (2/2) is displayed for 5 seconds.</p> <p>*****</p> <p>5. Error occurring Disc type is displayed for 5 seconds.</p> <p>*****</p> <p>6. Disc Maker ID is displayed for 5 seconds.</p> <p>*****</p> <p>7. Factor of Drive Error occurring is left displayed</p> <p>*****</p>	<p>Press [4] [2] in service mode.</p> <p>When “INFO*****” is being displayed, past 19 error histories can be displayed by pressing [0] [1] - [1] [9]</p> <p>In case that the maker cannot be identified, display is black out.</p>
Delete the Last Drive Error	Delete the Last Drive Error information stored on the DVD RAM-Drive.	CLR	Press [9] [6] in service mode.

Item		FL display	Key operation															
Mode name	Description		(Remote controller key)															
Laser power confirmation	Drive state is judged based on difference between laser power value at shipping and present laser power value.	<div>CHK *</div> <p>* is judgment result</p> <table><tr><td>*</td><td>Power value difference</td><td>Evaluation</td></tr><tr><td>0</td><td>1mW or less</td><td>Very good.</td></tr><tr><td>1</td><td>2mW or less</td><td>Good.</td></tr><tr><td>2</td><td>3mW or less</td><td>Bad.</td></tr><tr><td>3</td><td>4mW or more</td><td>Very bad.</td></tr></table> <p>If DVD-RAM disc in not inserted, [NO DISC] is displayed. If power value study was filed, [ERROR] is displayed.</p>	*	Power value difference	Evaluation	0	1mW or less	Very good.	1	2mW or less	Good.	2	3mW or less	Bad.	3	4mW or more	Very bad.	1. Insert DVD-RAM disc into RAM Drive in service mode. (Other media are assumed to be non-correspondence.) 2. Press [4] [4].
*	Power value difference	Evaluation																
0	1mW or less	Very good.																
1	2mW or less	Good.																
2	3mW or less	Bad.																
3	4mW or more	Very bad.																
Turn on all FL/ LEDs	All segments of FL and all LEDs are turned on.	All segments are turned on.	Press [5] [1] in service mode.															
PB HIGH Signal Output	8 pin of AV 1 Jack (PB HIGH terminal) is High (approx. 11V DC).	<div>PB HI</div>	Press [5] [2] in service mode.															
PB MIDDLE Signal Output	8 pin of AV 1 Jack (PB HIGH terminal) is Middle (approx. 5.5V DC)	<div>PB MID</div>	Press [5] [3] in service mode.															
Front connection inspection	Press all front keys and check the connection between Main P.C.B. and Front key Switches.	<div><div>01</div><div>(1)</div><div>**</div><div>(2)</div></div> <p>(1) Each time a key is pressed, segment turned on increases one by one. (2) Total umber of keys that have been pressed.</p>	Press [5] [4] in service mode.															
Production Date Display	Display the date when the unit was produced.	<div>YYMMDD</div> <p>YY: Year MM: Month DD: Day</p>	Press [6] [1] in service mode.															
Display the accumulated working time	Display the accumulated unit's working time.	<div>*****</div> <p>(Indicating unit: Second)</p>	Press [6] [4] in service mode.															

Item		FL display	Key operation
Mode name	Description		(Remote controller key)
Display the Error History	Display the Error History stored on the unit.	<p>Display reason of error for 5 seconds.</p> <div>NO **</div> <p>01: Defect of Digital P.C.B. (AV DEC / MAIN CPU) 02: Defect of RAM Drive. 03: Defect of Disc. 04: Defect of Digital P.C.B. or Communication Error. 05: Defect of Digital P.C.B. (AV DEC / MAIN CPU) 06: Defect of HDD.</p> <p>Display the time when the error has occurred for 5 seconds.</p> <div>DDhhmm</div> <p>DD: Day hh: Hour mm: Minute Accumulated working time till occuring of the error is left displayed.</p> <div>*****</div> <p>(Indicating unit: Second)</p>	<p>Press [6] [5] in service mode. Then press [0] [1] ~ [1] [9], the past 19 error histories are displayed.</p>
Delete the Error History	Delete Error History information stored on the unit.	<div>CLR</div>	Press [9] [7] in service mode.
AV4(V)/AV1(RGB) I/O Setting	Set input to AV4 (V) and set output to AV1 (RGB) for I/O checking	<div>PAL 01</div>	Press [8] [0] in service mode.
AV2(Y/C)/AV1(V) I/O Setting	Set input to AV2 (Y/C) and set output to AV1 (V) for I/O checking	<div>PAL 02</div>	Press [8] [1] in service mode.
AV2(V)/AV1(Y/C) I/O Setting	Set input to AV2 (V) and set output to AV1 (Y/C) for I/O checking	<div>PAL 03</div>	Press [8] [2] in service mode.

Item		FL display	Key operation
Mode name	Description		(Remote controller key)
AV2(RGB)/AV1(V) I/O Setting	Set input to AV2 (RGB) and set output to AV1 (V) for I/O checking	PAL 04	Press [8] [3] in service mode.
P50(H) Output	Timer Microprocessor IC7501-76 output High signal for AV1-pin 10 passing through inverter (approx. 0V DC at AV1-pin 10).	When OK. P50HOK When NG. P50HNG	Press [8] [4] in service mode.
P50(L) Output	Timer Microprocessor IC7501-76 output Low signal for AV1-pin 10 passing through inverter (approx. 4.4V DC at AV1-pin 10).	When OK. P50LOK When NG. P50LNG	Press [8] [5] in service mode.
Tray OPEN/CLOSE Test	The RAM drive tray is opened and closed repeatedly.	***** “*” is number of open/close cycle times.	Press [9] [1] in service mode *When releasing this mode, press the [POWER] button of Remote Controller more than 10 seconds.
Error code initialization	Initialization of the last error code held by timer (Write in F00)	CLR	Press [9] [8] in service mode.
Initialize Service	Last Drive Error, Error history and Error Codes stored on the unit are initialized to factory setting.	CLR	Press [9] [9] in service mode.
Finishing service mode	Release Service Mode.	Display in STOP (E-E) mode. *****	Press power button on the front panel or Remote controller in service mode.

9. Service Fixture & Tools

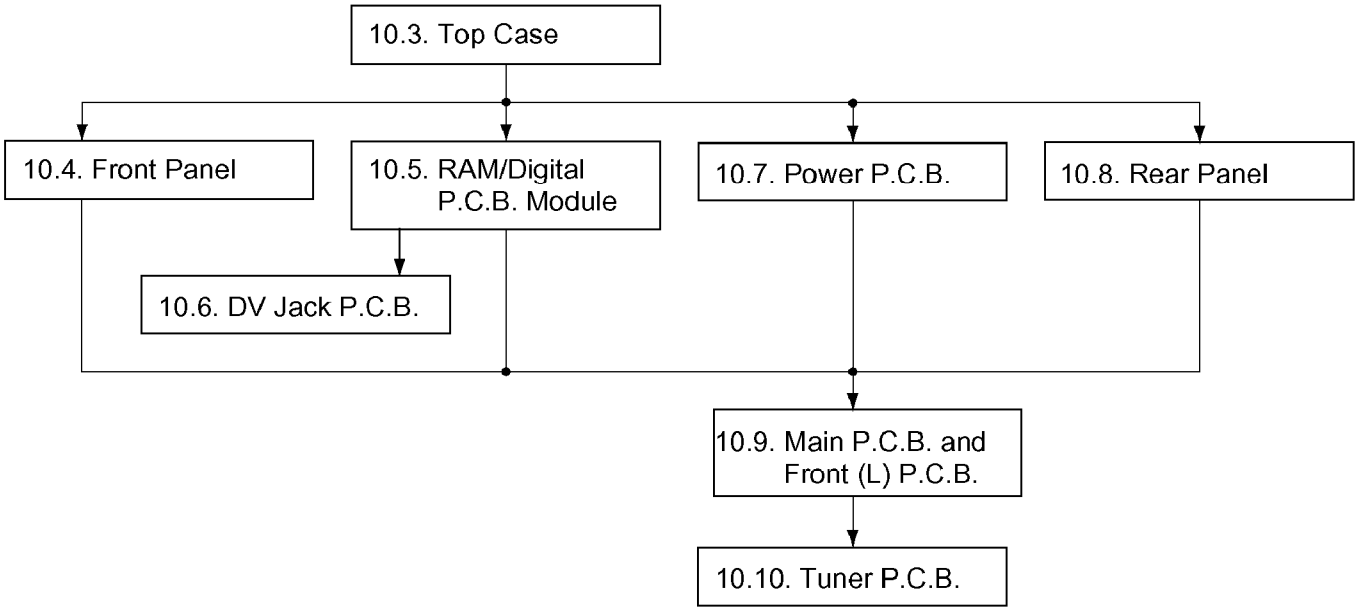
Part Number	Description	Compatibility
RFKZ0365	Extension Cable (MainP.C.B. - Digital P.C.B. / 64 Pin)	New
RFKZ0240	Extension Cable (MainP.C.B. - Power P.C.B. / 19 Pin)	Same as E75V/ES30V Series
JZS0484	Eject Pin	Same as E50 Series
RFKZ03D01K	Lead Free Solder (0.3mm/100g Reel)	New
RFKZ06D01K	Lead Free Solder (0.6mm/100g Reel)	New
RFKZ10D01	Lead Free Solder (1.0mm/100g Reel))	New
RFKZ0316	Solder Remover (Lead free 10W temperature Solder/180g)	New
RFKZ0328	Flux	New
RFKZ0329	Bottle of Flux	New

10. Disassembly and Assembly Instructions

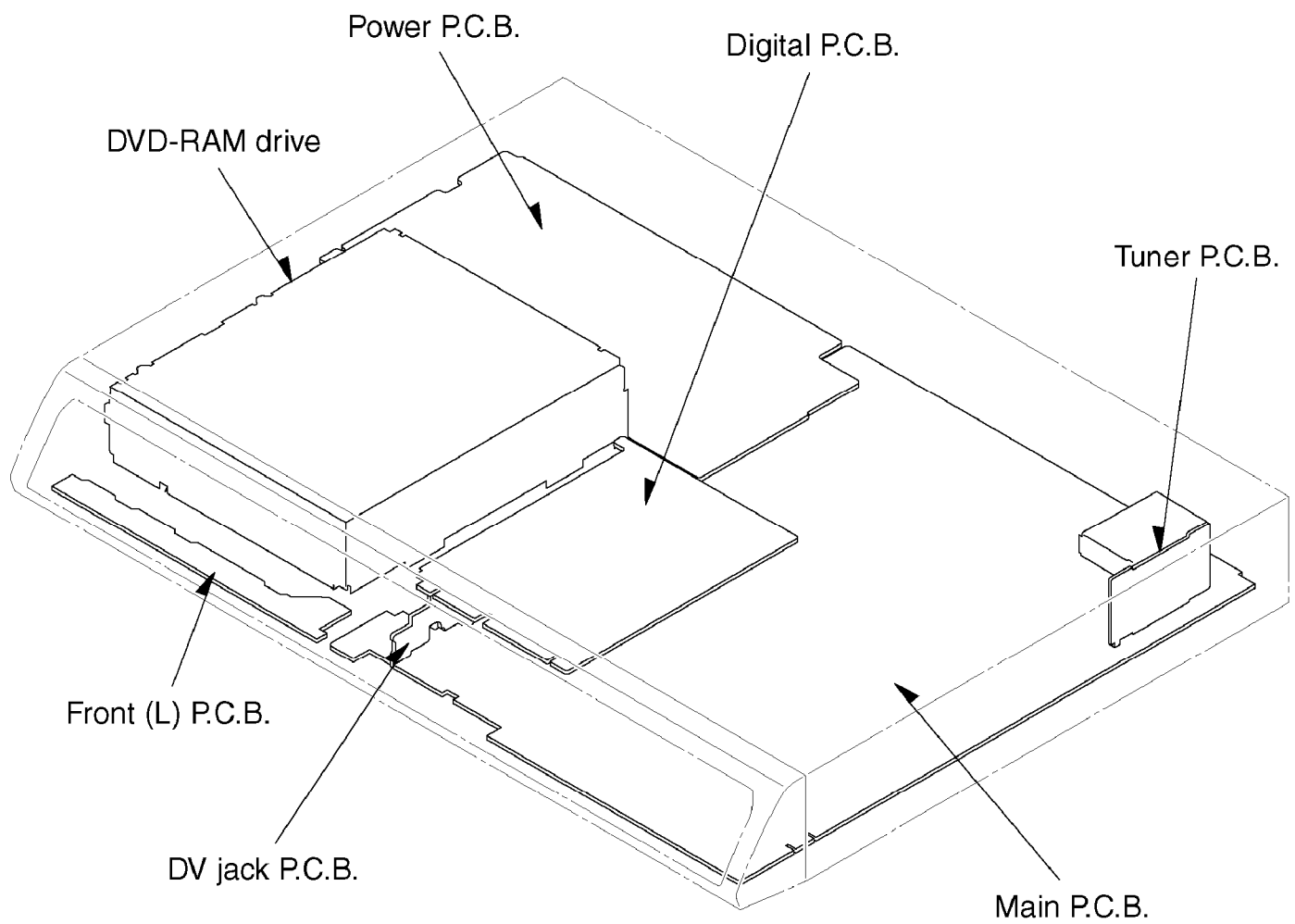
10.1. Disassembly Flow Chart

The following chart is the procedure for disassembling the casing and inside parts for internal inspection when carrying out the servicing.

To assemble the unit, reverse the steps shown in the chart below.

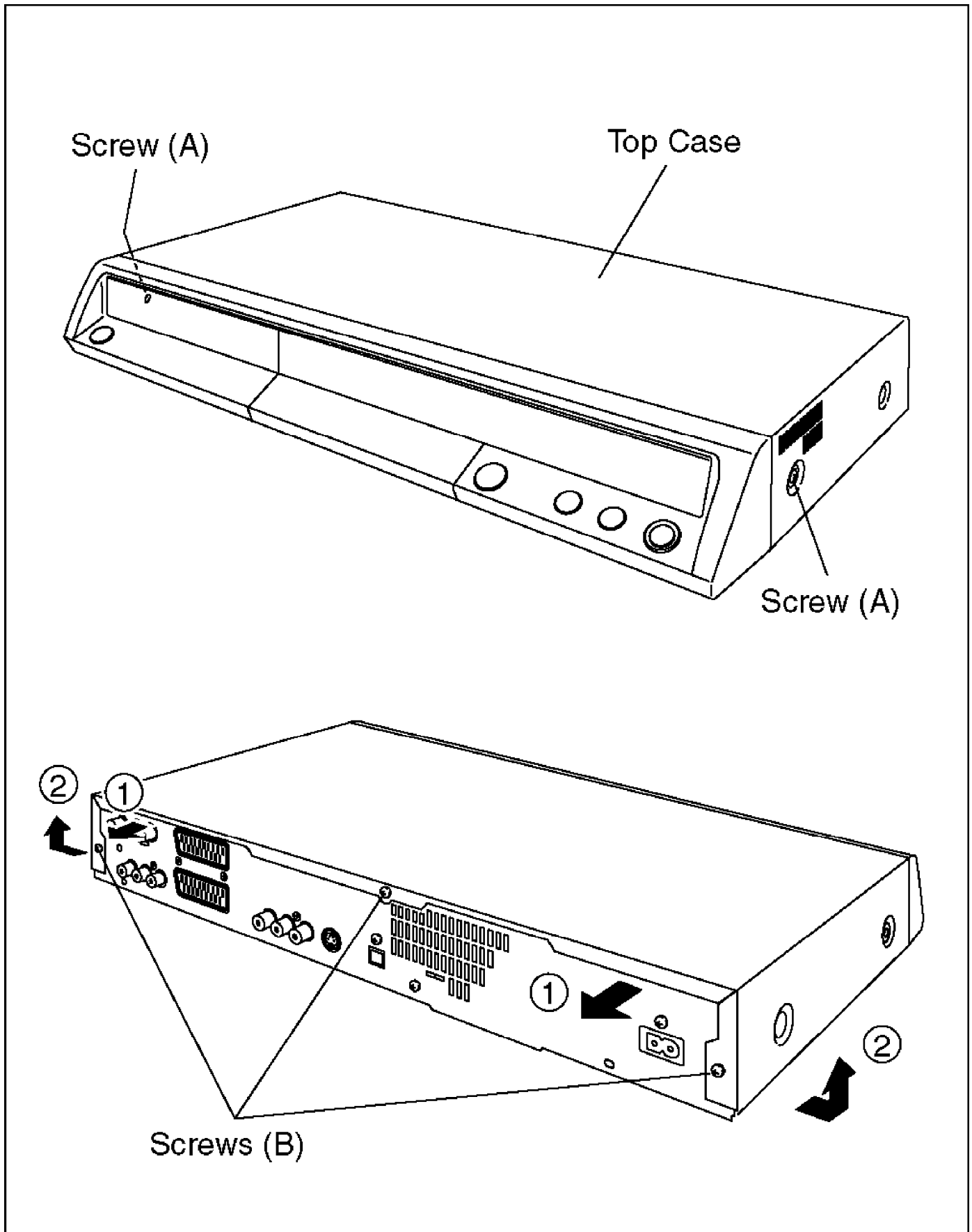


10.2. P.C.B. Positions



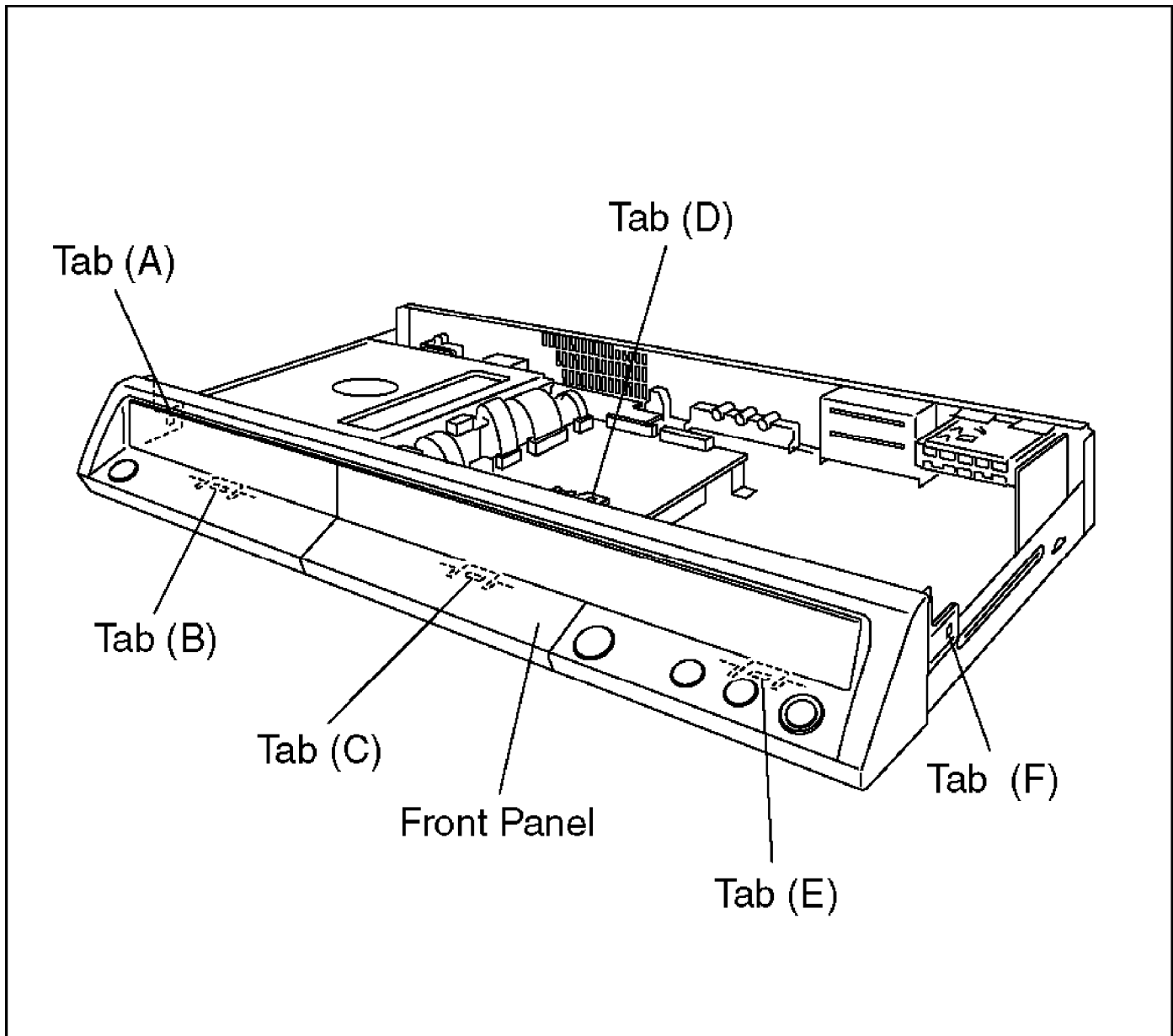
10.3. Top Case

1. Remove 2 screws (A) and 3 screws (B).
2. Slide Top Case rearward and open the both ends at rear side of the Top Case a little and lift the Top Case in the direction of the arrows.



10.4. Front Panel

1. Unlock 6 tabs in (A) - (F) turn.
Pull with the front panel in the direction of your side.

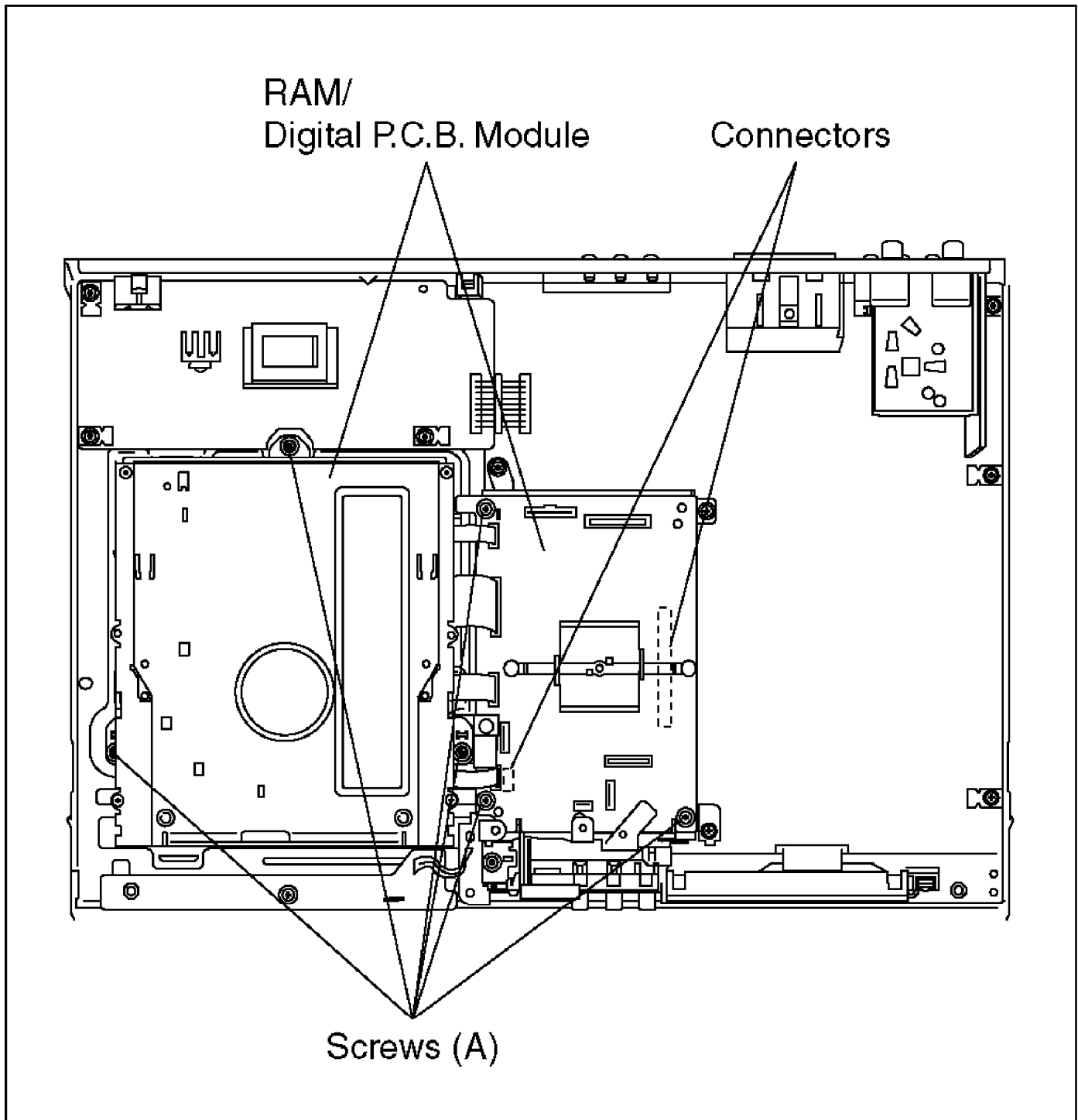


10.5. RAM/Digital P.C.B. Module

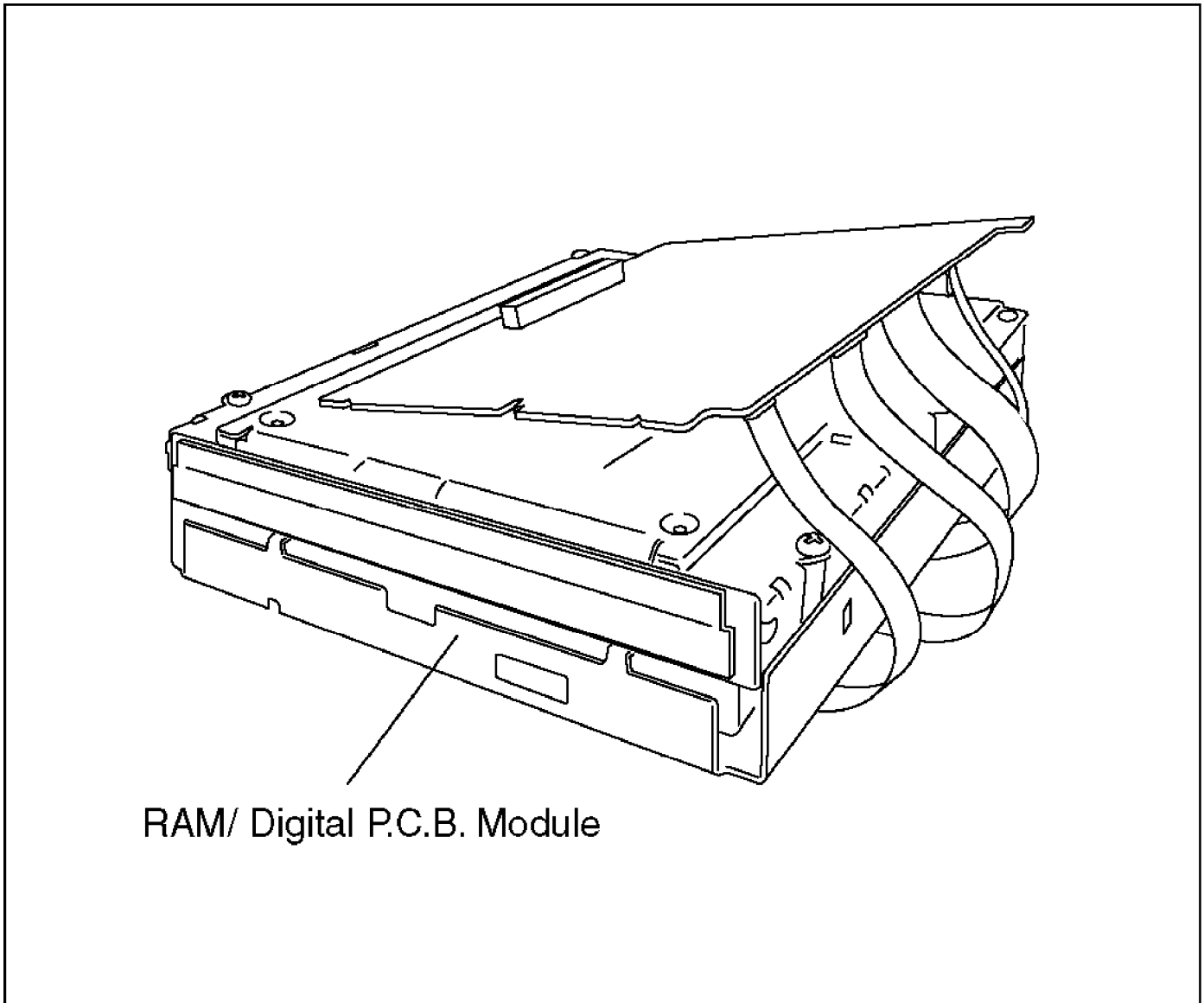
Caution:

Pairing of RAM Drive and Digital P.C.B. as "RAM/ Digital P.C.B. Module" have to be replaced together. If the pairing is changed, RAM Drive unit has to be re-aligned. Because the alignment data for RAM Drive Unit is stored in Digital P.C.B..

1. Remove 6 Screws (A).
2. Lift up Digital P.C.B. slightly so to disconnect Connectors to remove Digital P.C.B.



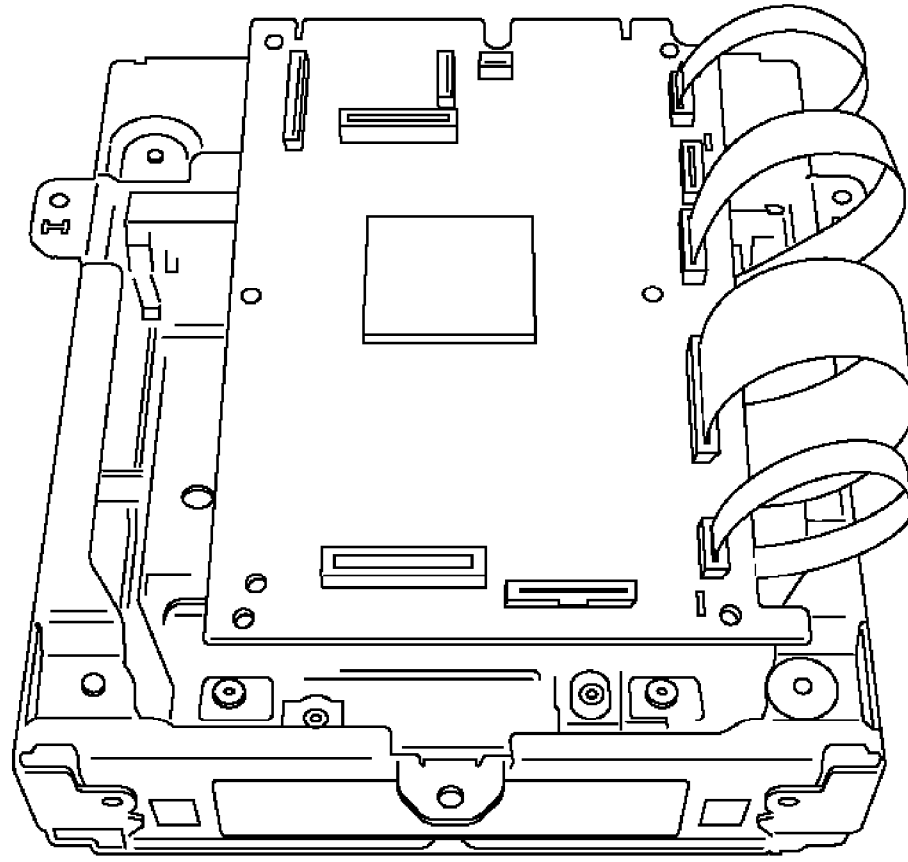
3. Put Digital P.C.B. on RAM Drive and remove RAM/Digital P.C.B. Module.



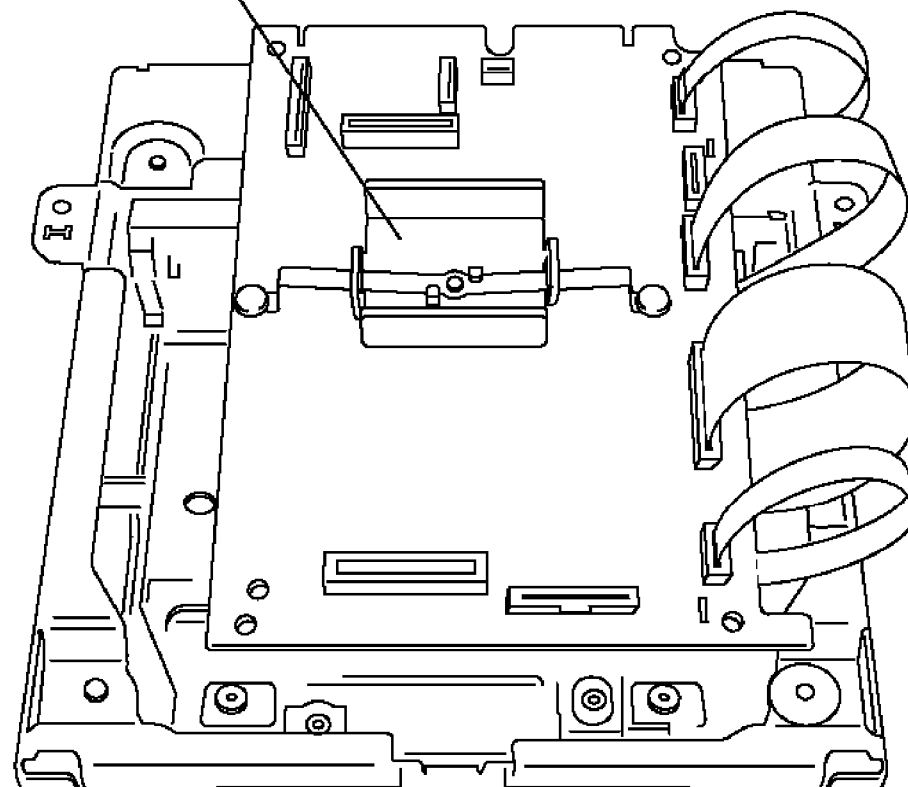
Note:

RAM/Digital P.C.B. Module as service part has no heat sink unit.

Before returning to customer, heat sink unit should be installed on Digital P.C.B..



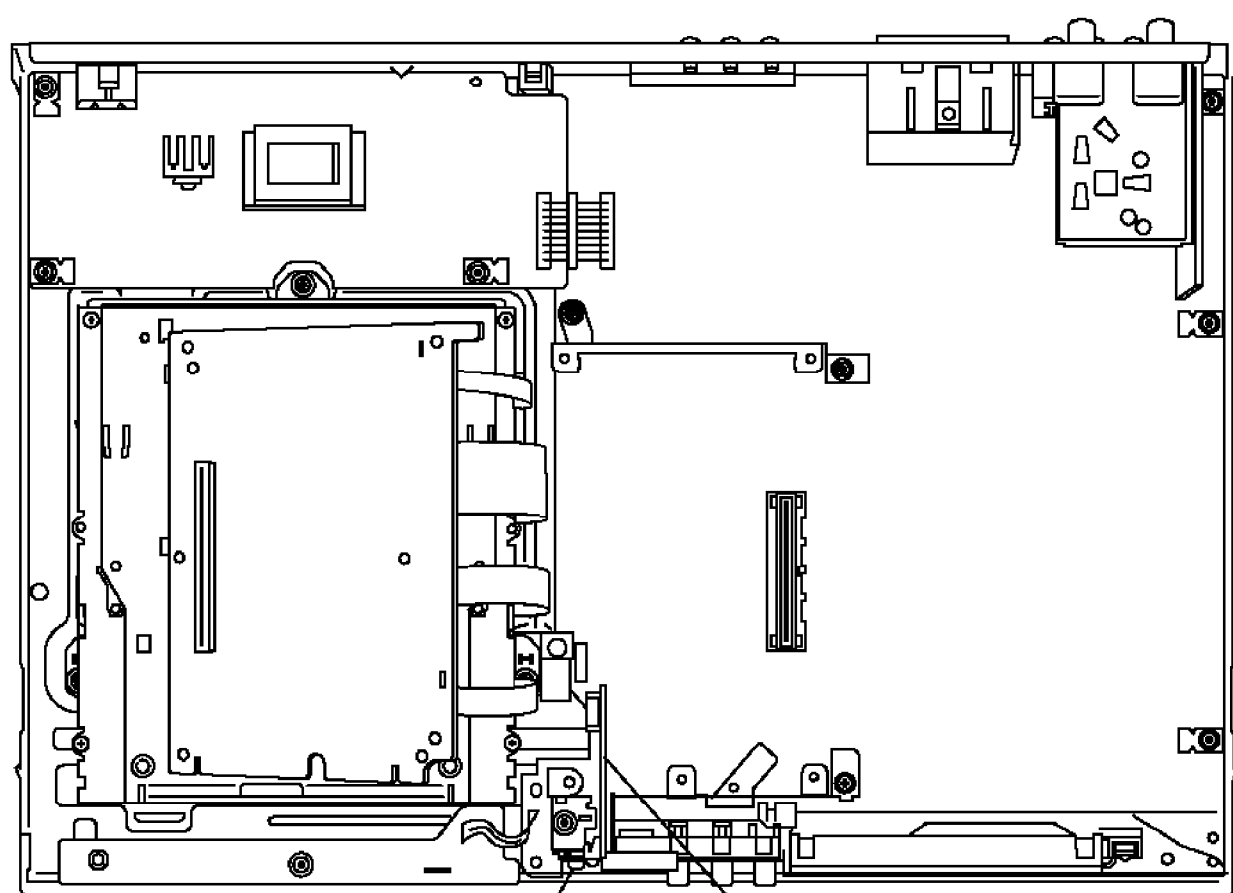
Heat Sink Unit





10.6. DV Jack P.C.B.

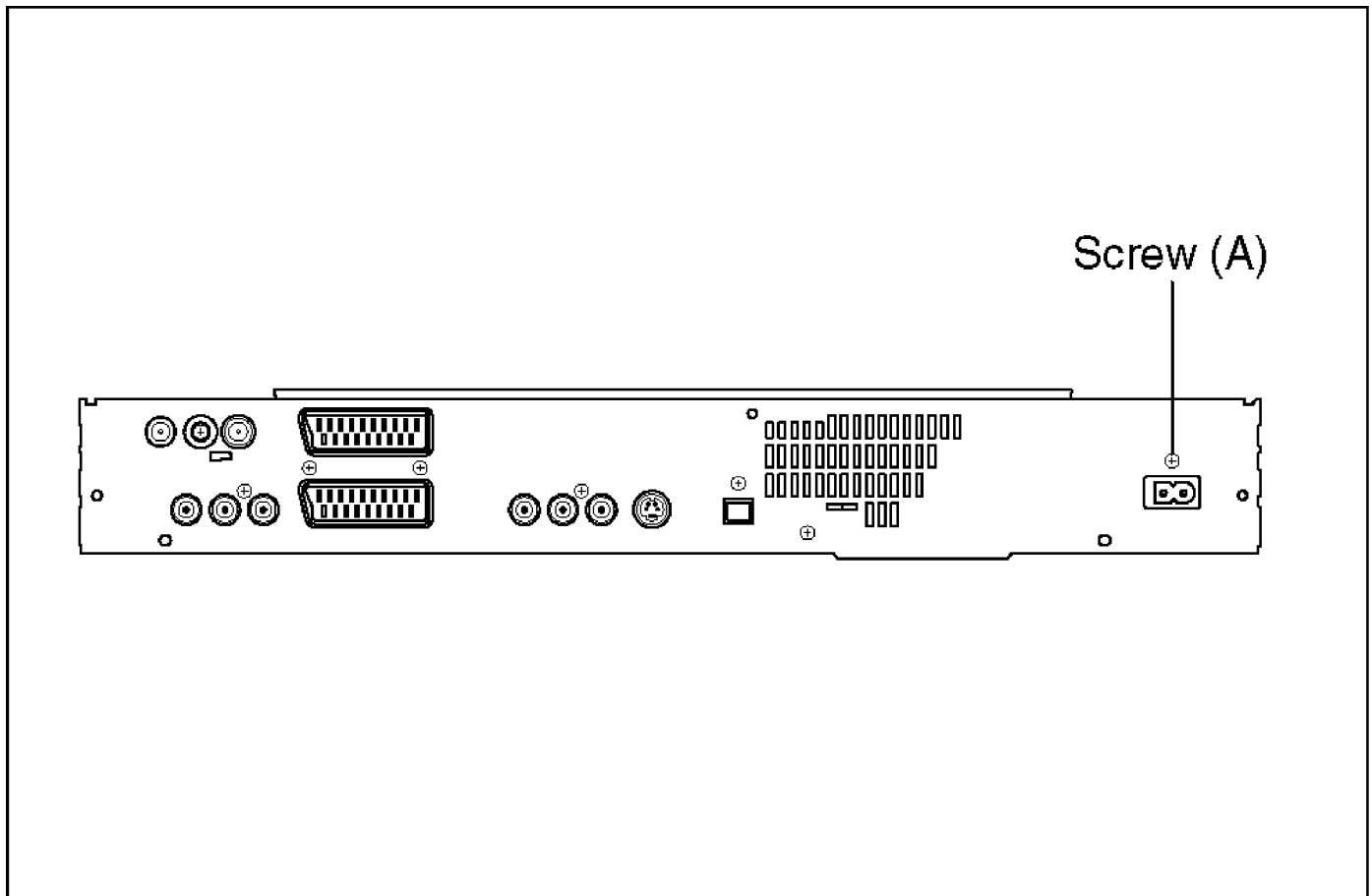
1. Remove 1 Screw (A) to remove DV jack P.C.B.



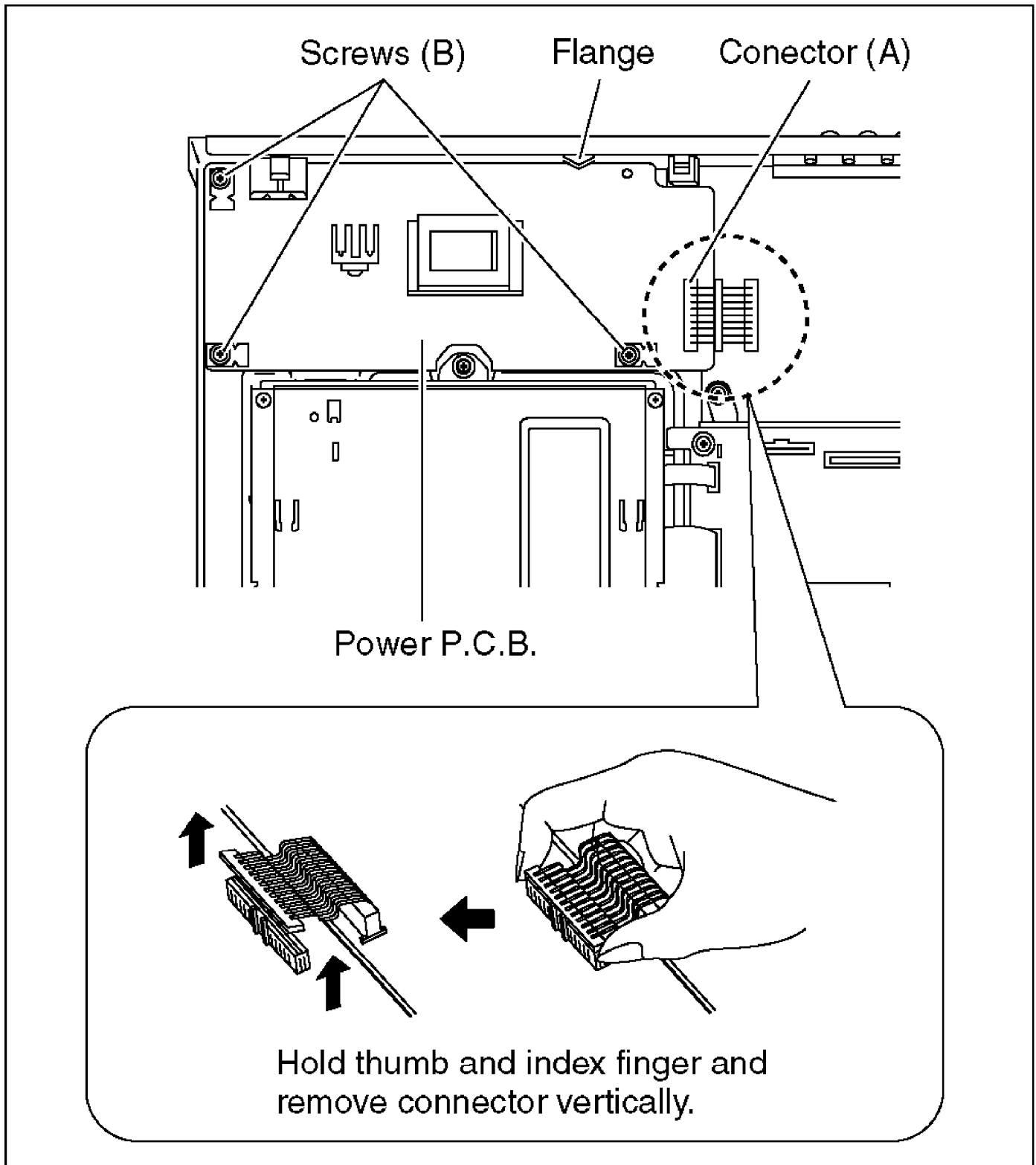
Screw (A) DV jack P.C.B.

10.7. Power P.C.B.

1. Remove 1 Screw (A).

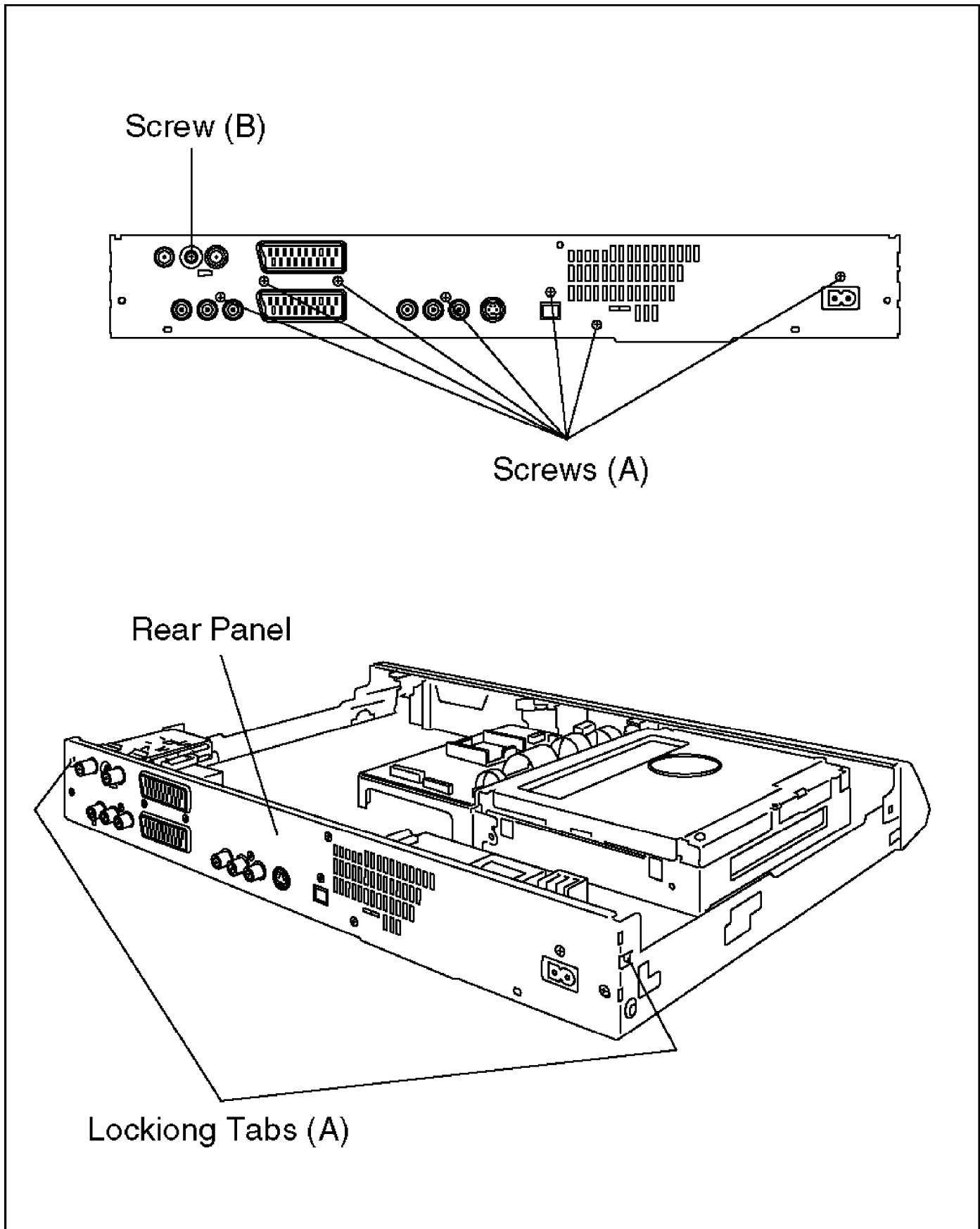


2. Remove 3 Screws (B) and disconnect Connector (A).
3. Unlock Power P.C.B. from a Flange to remove Power P.C.B.



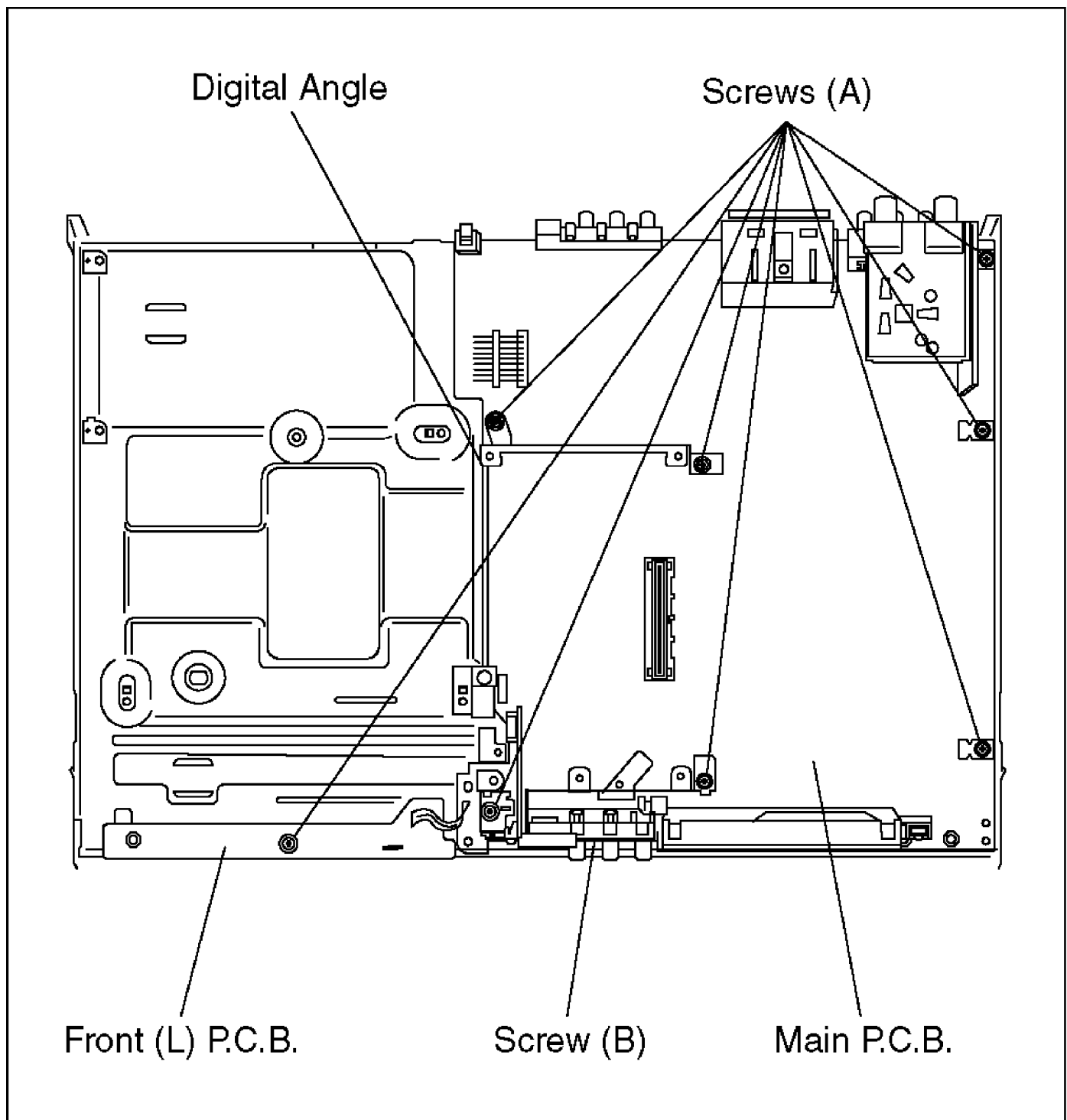
10.8. Rear Panel

1. Remove 7 Screws (A) and 1 Screw (B).
2. Unlock 2 Locking Tabs (A) to remove Rear Panel.



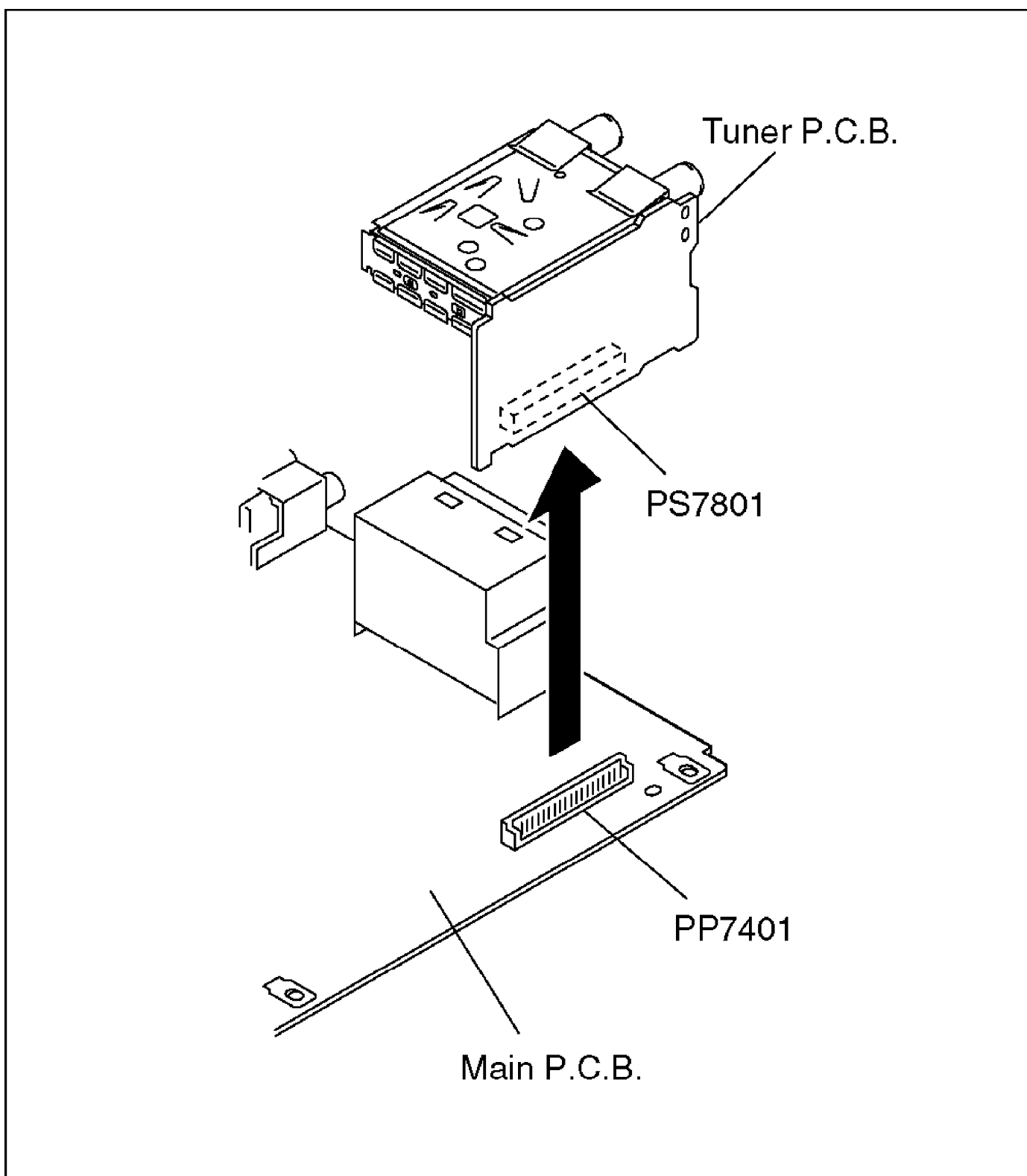
10.9. Main P.C.B. and Front (L) P.C.B.

1. Remove 8 Screws (A) and 1 Screw (B).
2. Remove Digital Angle to remove Main P.C.B. and Front (L) P.C.B..



10.10. Tuner P.C.B.

1. Pull out the Tuner P.C.B. in the direction of the arrow.



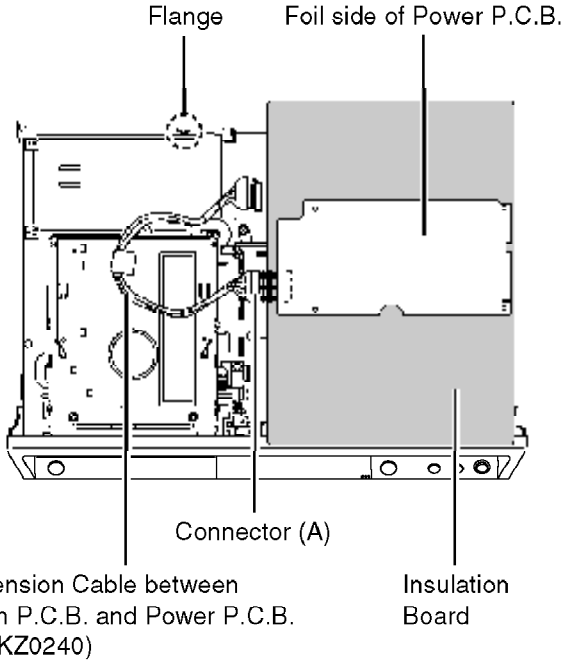
11. Measurements and Adjustments

11.1. Service Positions

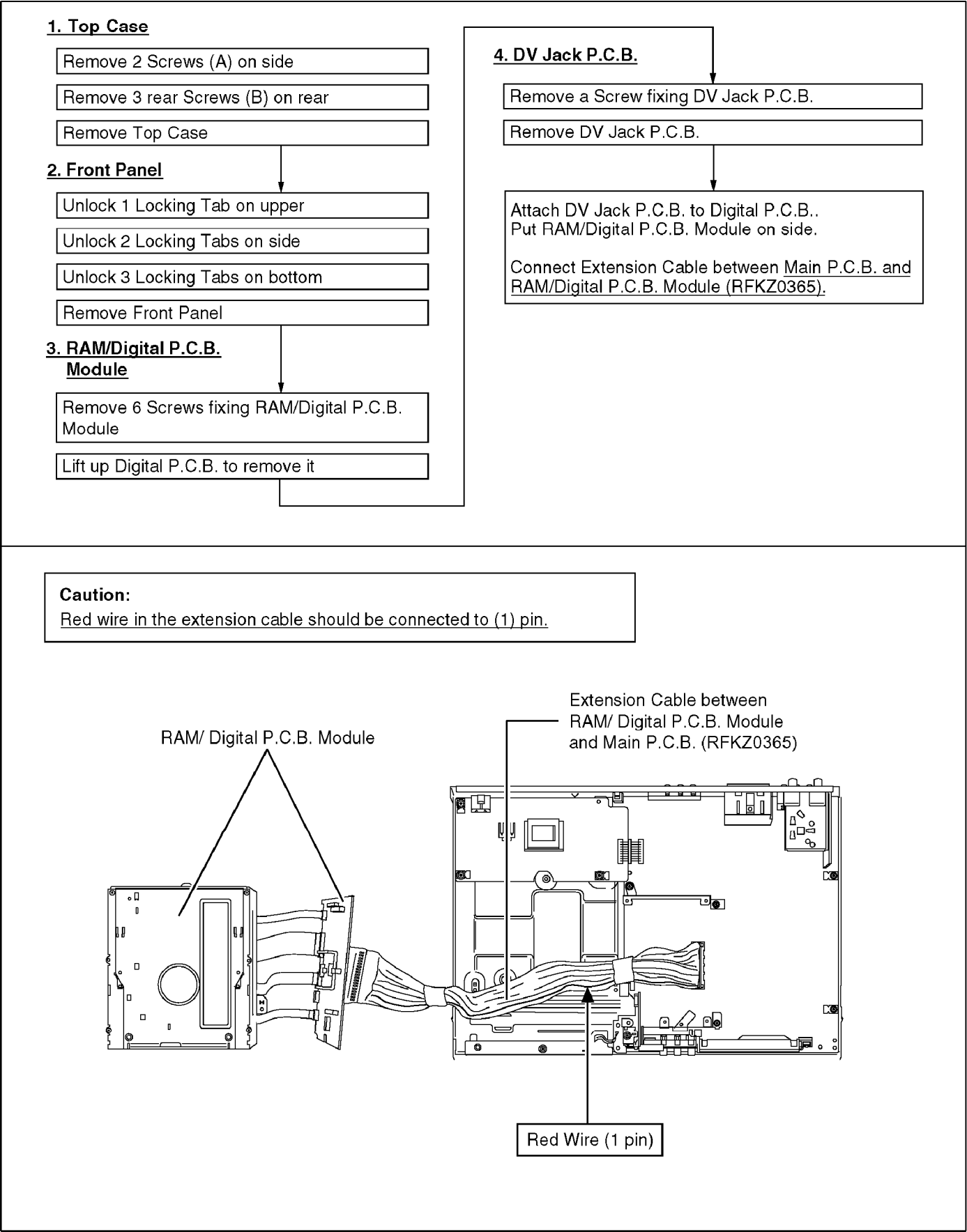
Note:

For description of the disassembling procedure, see the section 10.

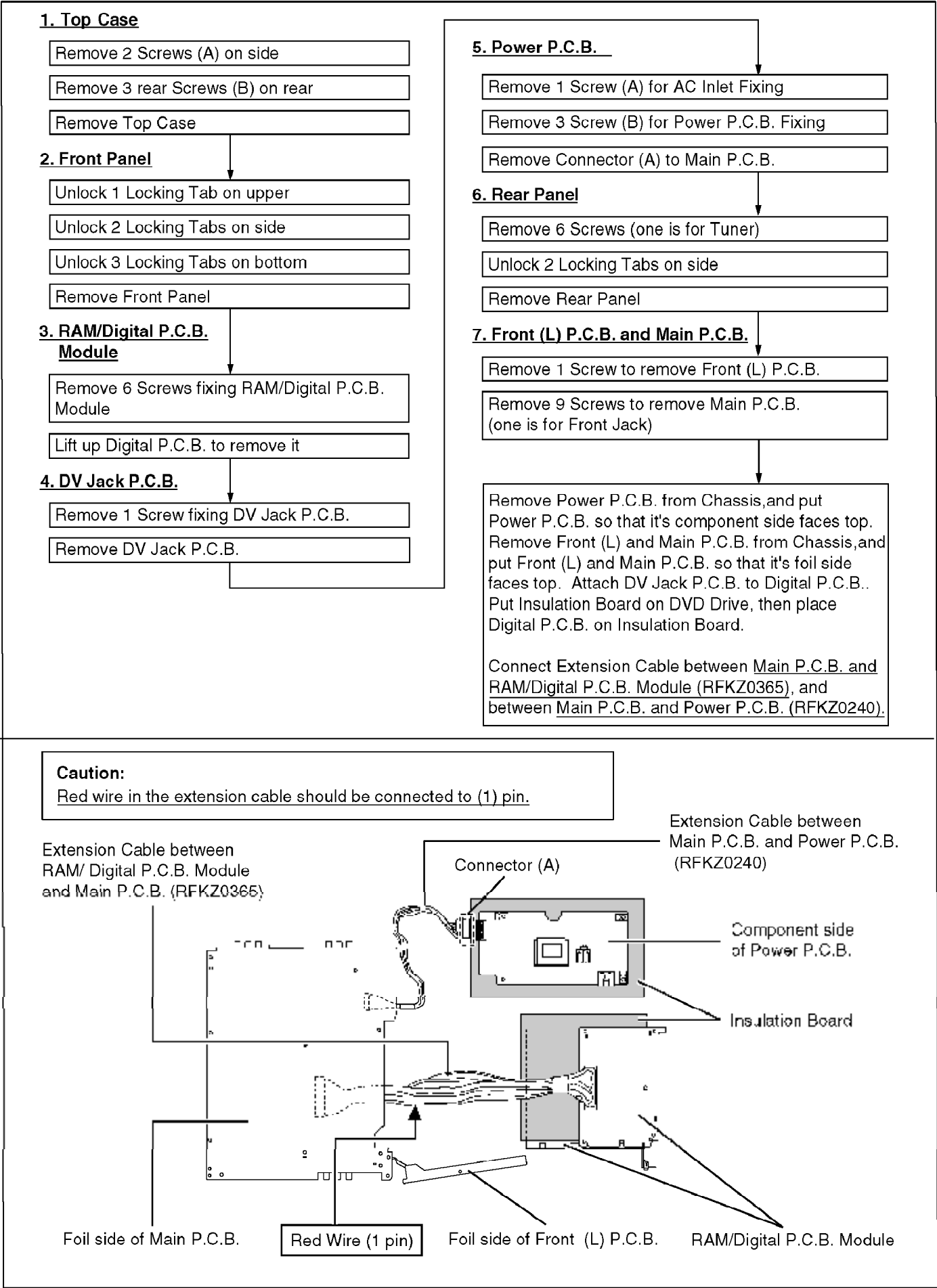
11.1.1. Checking and Repairing of Power P.C.B.

<p>1. Top Case</p> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Remove 2 Screws (A) on side</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Remove 3 rear Screws (B) on rear</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Remove Top Case</div> <p style="text-align: center;">↓</p> <p>2. Power P.C.B.</p> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Remove 1 Screw (A) for AC Inlet fixing</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Remove 3 Screws (B) for Power P.C.B. fixing</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Remove Connector (A) to Main P.C.B.</div> <p style="text-align: center;">↓</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p>Unlock Power P.C.B. from a Flange to remove Power P.C.B.</p> <p>Connect Extension Cable between Main P.C.B. and Power P.C.B. (RFKZ024C).</p> <p>Put Power P.C.B. on Insulation Board so that it's foil side faces top.</p> </div>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Caution:</p> <p>Red wire in the extension cable should be connected to (1) pin.</p> </div> <div style="text-align: center;">  </div>
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11.1.2. Checking and Repairing of RAM / Digital P.C.B. Module



11.1.3. Checking and Repairing of Main P.C.B.



11.2. Caution for Replacing Parts

11.2.1. Items that should be done after replacing parts

✓ :Necessary — :Unnecessary

Items that Should be done	Reset IC7501 (*Note1)	Obtain and register a new registration code.(*Note2)
Replacing Parts		
Main P.C.B.	✓	✓
IC7501 (Timer IC)	✓	—
IC7404 (EEPROM)	—	✓

***Note1:**
Resetting Method

Reset object	Condition of power	Short Terminal
IC7501 (Timer IC)	POWER ON	IC7502-4 (RESET_L) and GND

***Note2:**
Please will always pass the customer “Warning for Customers Who Use the DivX Video-on-Demand content.” with the product and get it when you unavoidably exchange EEPROM or P.C.B. including EEPROM (When the product is exchanged, it is the same.).
You must use print attached to service part (EEPROM or P.C.B. including EEPROM) or must use copy of print below as “Warning for Customers who use the DivX Video-on-Demand content.”
Information needed without fail for the customer for whom it is used continuing DivX Video-on-Demand Service to “Manual for the customer” is recorded.

Appendix:

- * Parts that memorize user’s information are only EEPROM.
- * The registration of Registration Code is possible for half a year up to 6 recorders up to 10 recorders a year.
Replacement of EEPROM or P.C.B. including EEPROM spends one of this.

Registration Code is memorized in EEPROM (RFKFxxxxxx).
Model without VHS: Main P.C.B.
Model with VHS: Digital I/F P.C.B. (Power & DVD I/F/P.C.B.)
If exchange above P.C.B. or EEPROM, new registration Code differ from previous Registration Code will be generated.
In this case if your customer uses DivX Video-on-Demand service, he/she will no longer be able to play any content that he/she purchased under that same registration code.
Therefore your customer will need to obtain and register the new registration code.

*Copy this page and cut on the dotted line and give the lower half to your customer.

Warning for Customers who use the DivX Video-on-Demand content.

1. The registration code has been changed for the repair of the product or the product exchange.
 2. Obtain and register a new registration code, otherwise you will no longer be able to play DivX Video-on-Demand content.
 3. Follow the procedure on the DivX Video-on-Demand web site to register at <http://vod.divx.com/>
- * If you do not use the DivX Video-on-Demand content, please ignore this warning.

11.3. Standard Inspection Specifications after Making Repairs

After making repairs, we recommend performing the following inspection, to check normal operation.

No.	Procedure	Item to Check
1	Turn on the power, and confirm items pointed out.	Items pointed out should reappear.
2	Insert RAM disc.	The Panasonic RAM disc should be recognized.
3	Enter the EE (TU IN / AV IN - AV OUT) mode.	No abnormality should be seen in the picture, sound or operation.
4	Perform auto recording and playback for one minute using the RAM disc.	No abnormality should be seen in the picture, sound or operation. *Panasonic DVD-RAM disc should be used when recording and playback.
5	If a problem is caused by a VCD, DVD-R, DVD-Video, Audio-CD, or MP3, playback the test disc.	No abnormality should be seen in the picture, sound or operation.
6	After checking and making repairs, upgrade the firmware to the latest version.	Make sure that [FIRM_SUCCESS] appears in the FL displays. *[UNSUPPORT] display means the unit is already updated to newest same version. Then version up is not necessary.
7	Transfer [9][9] in the service mode setting, and initialize the service settings (return various settings and error information to their default values. The laser time is not included in this initialization).	Make sure that [CLR] appears in the FL display. After checking it, turn the power off.

Use the following checklist to establish the judgement criteria for the picture and sound.

Item	Contents	Check	Item	Contents	Check
Picture	Block noise		Sound	Distorted sound	
	Crosscut noise			Noise (static, background noise, etc.)	
	Dot noise			The sound level is too low.	
	Picture disruption			The sound level is too high.	
	Not bright enough			The sound level changes.	
	Too bright				
	Flickering color				
	Color fading				

12. Block Diagram

12.1. Power Supply Block Diagram



12.2. Analog Video Block Diagram



12.3. Analog Audio Block Diagram



12.4. Analog Timer Block Diagram



13. Schematic Diagram

13.1. Interconnection Schematic Diagram



13.2. Power Supply Schematic Diagram



13.3. Main Net (1/4) Section (Main P.C.B. (1/4)) Schematic Diagram (M)



13.4. Main Net (2/4) Section (Main P.C.B. (1/4)) Schematic Diagram (M)



13.5. Main Net (3/4) Section (Main P.C.B. (1/4)) Schematic Diagram (M)



13.6. Main Net (4/4) Section (Main P.C.B. (1/4)) Schematic Diagram (M)



13.7. A/V I/O (1/4) Section (Main P.C.B. (2/4)) Schematic Diagram (AV)



13.8. A/V I/O (2/4) Section (Main P.C.B. (2/4)) Schematic Diagram (AV)



13.9. A/V I/O (3/4) Section (Main P.C.B. (2/4)) Schematic Diagram (AV)



13.10. A/V I/O (4/4) Section (Main P.C.B. (2/4)) Schematic Diagram (AV)



13.11. Nicam Decoder Section (Main P.C.B. (3/4)) Schematic Diagram (DE)



13.12. Timer (1/4) Section (Main P.C.B. (4/4)) Schematic Diagram (T)



13.13. Timer (2/4) Section (Main P.C.B. (4/4)) Schematic Diagram (T)



13.14. Timer (3/4) Section (Main P.C.B. (4/4)) Schematic Diagram (T)



13.15. Timer (4/4) Section (Main P.C.B. (4/4)) Schematic Diagram (T)



13.16. Tuner Pack Schematic Diagram



13.17. Front (L) Schematic Diagram



13.18. DV Jack Schematic Diagram



14. Printed Circuit Board

14.1. Power P.C.B.



14.2. Main P.C.B.

14.2.1. Main P.C.B. (1/4 Section)



14.2.2. Main P.C.B. (2/4 Section)



14.2.3. Main P.C.B. (3/4 Section)



14.2.4. Main P.C.B. (4/4 Section)



14.2.5. Main P.C.B. Address Information



14.3. Tuner P.C.B. and DV Jack P.C.B.



14.4. Front (L) P.C.B.



15. Appendix for Schematic Diagram

15.1. Voltage and Waveform Chart

Note)
Circuit voltage and waveform described herein shall be regarded as reference information when probing defect point, because it may differ from an actual measuring value due to difference of Measuring instrument and its measuring condition and product itself.

15.1.1. Power P.C.B.



15.1.2. Main P.C.B.



15.1.3. Tuner P.C.B.



15.1.4. P59001 Connector



15.1.5. Waveform Chart



15.1.6. Abbreviations

INITIAL/LOGO		ABBREVIATIONS
E	EC	ERROR TORQUE CONTROL
	ECR	ERROR TORQUE CONTROL REFERENCE
	ENCSEL	ENCODER SELECT
	ETMCLK	EXTERNAL M CLOCK (81MHz/40.5MHz)
	ETSCLK	EXTERNAL S CLOCK (54MHz)
F	FBAL	FOCUS BALANCE
	FCLK	FRAME CLOCK
	FE	FOCUS ERROR
	FFI	FOCUS ERROR AMP INVERTED INPUT
	FEO	FOCUS ERROR AMP OUTPUT
	FG	FREQUENCY GENERATOR
	FSC	FREQUENCY SUB CARRIER
	FSCK	FS (384 OVER SAMPLING) CLOCK
G	GND	COMMON GROUNDING (EARTH)
H	HA0~UP	HOST ADDRESS
	HD0~UP	HOST DATA
	HINT	HOST INTERRUPT
	HRXW	HOST READ/WRITE
I	IECOUT	IEC958 FORMAT DATA OUTPUT
	IPFRAG	
	IREF	INTERPOLATION FLAG
	ISEL	I (CURRENT) REFERENCE INTERFACE MODE SELECT
L	LDON	LASER DIODE CONTROL
	LPC	LASER POWER CONTROL
	LRCK	L CH/R CH DISTINCTION
		CLOCK
M	MA0~UP	MEMORY ADDRESS
	MCK	MEMORY CLOCK
	MCKI	MEMORY CLOCK INPUT
	MCLK	MEMORY SERIAL COMMAND
	MDATA	CLOCK
	MDQ0~UP	MEMORY SERIAL COMMAND
	MDQM	DATA
	MLD	MEMORY DATA INPUT/OUTPUT
	MPEG	MEMORY DATA I/O MASK
		MEMORY SERIAL COMMAND LOAD
O	ODC	MOVING PICTURE EXPERTS GROUP
	OFTR	OPTICAL DISC CONTROLLER
	OSCI	OFF TRACKING
	OSCO	OSCILLATOR INPUT
	OSD	OSCILLATOR OUTPUT
		ON SCREEN DISPLAY
INITIAL/LOGO		ABBREVIATIONS
P	P1~UP	PORT
	PCD	CD TRACKING PHASE
	PCK	DIFFERENCE
	PDVD	PLL CLOCK
	PEAK	DVD TRACKING PHASE
	PLLCLK	DIFFERENCE
	PLLOK	CAP. FOR PEAK HOLD
	PWMCTL	CHANNEL PLL CLOCK
	PWMDA	PLL LOCK
	PWMOA, B	PWM OUTPUT CONTROL
		PULSE WAVE MOTOR DRIVE A
		PULSE WAVE MOTOR OUT A, B

INITIAL/LOGO		ABBREVIATIONS
R	RE	READ ENABLE
	RFENV	RF ENVELOPE
	RFO	RF PHASE DIFFERENCE
	RS	OUTPUT
	RSEL	(CD-ROM) REGISTER SELECT
	RST	RF POLARITY SELECT
	RSV	RESET RESERVE
S	SBI0, 1	SERIAL DATA INPUT
	SBO0	SERIAL DATA OUTPUT
	SBT0, 1	SERIAL CLOCK
	SCK	SERIAL DATA CLOCK
	SCKR	AUDIO SERIAL CLOCK
	SCL	RECEIVER
	SCLK	SERIAL CLOCK
	SDA	SERIAL CLOCK
	SEG0~UP	SERIAL DATA
	SELCLK	FL SEGMENT OUTPUT
	SEN	SELECT CLOCK
	SIN1, 2	SERIAL PORT ENABLE
	SOUT1, 2	SERIAL DATA IN
	SPDI	SERIAL DATA OUT
	SPDO	SERIAL PORT DATA INPUT
	SPEN	SERIAL PORT DATA OUTPUT
	SPRCLK	SERIAL PORT R/W ENABLE
	SPWCLK	SERIAL PORT READ CLOCK
	SQCK	SERIAL PORT WRITE CLOCK
	SQCX	SUB CODE Q CLOCK
	SRDATA	SUB CODE Q DATA READ
	SRMADR	CLOCK
	SRMDT0~7	SERIAL DATA
		SRAM ADDRESS BUS
	SS	SRAM DATA BUS 0~7
	STAT	START/STOP
	STCLK	STATUS
	STD0~UP	STREAM DATA CLOCK
	STENABLE	STREAM DATA STREAM DATA INPUT ENABLE
	STSEL	STREAM DATA POLARITY
	STVALID	SELECT
	SUBC	STREAM DATA VALIDITY
	SBCK	SUB CODE SERIAL
	SUBQ	SUB CODE CLOCK
	SYSCLK	SUB CODE Q DATA SYSTEM CLOCK
INITIAL/LOGO		ABBREVIATIONS
T	TE	TRACKING ERROR
	TIBAL	BALANCE CONTROL
	TID	BALANCE OUTPUT 1
	TIN	BALANCE INPUT
	TIP	BALANCE INPUT
	TIS	BALANCE OUTPUT 2
	TPSN	OP AMP INPUT
	TPSO	OP AMP OUTPUT
	TPSP	OP AMP INVERTED INPUT
	TRCRS	TRACK CROSS SIGNAL
	TRON	TRACKING ON
	TRSON	TRAVERSE SERVO ON

INITIAL/LOGO		ABBREVIATIONS
V	VBLANK	V BLANKING
	VCC	COLLECTOR POWER SUPPLY VOLTAGE
	VCDCONT	VIDEO CD CONTROL (TRACKING BALANCE)
	VDD	DRAIN POWER SUPPLY VOLTAGE
	VFB	VIDEO FEED BACK
	VREF	VOLTAGE REFERENCE
	VSS	SOURCE POWER SUPPLY VOLTAGE
W	WAIT	BUS CYCLE WAIT
	WDCK	WORD CLOCK
	WEH	WRITE ENABLE HIGH
	WSR	WORD SELECT RECEIVER
X	X	X' TAL
	XALE	X ADDRESS LATCH ENABLE
	XAREQ	X AUDIO DATA REQUEST
	XCDROM	X CD ROM CHIP SELECT
	XCS	X CHIP SELECT
	XCSYNC	X COMPOSITE SYNC
	XDS	X DATA STROBE
	XHSYNCO	X HORIZONTAL SYNC OUTPUT
	XHINT	XH INTERRUPT REQUEST
	XI	X' TAL OSCILLATOR INPUT
	XINT	X INTERRUPT
	XMW	X MEMORY WRITE ENABLE
	XO	X' TAL OSCILLATOR OUTPUT
	XRE	X READ ENABLE
	XSRMCE	X SRAM CHIP ENABLE
	XSRMOE	X SRAM OUTPUT ENABLE
	XSRMWE	X SRAM WRITE ENABLE
	XVCS	X V-DEC CHIP SELECT
	XVDS	X V-DEC CONTROL BUS STROBE
	XVSYNCO	X VERTICAL SYNC OUTPUT

16. Parts and Exploded Views

16.1. Exploded Views

16.1.1. Casing Parts & Mechanism Section




16.1.2. Packing & Accessories Section



16.2. Replacement Parts List

Notes:

***Important safety notice:**

Components identified by  mark have special characteristics important for safety. Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufactures specified parts shown in the parts list.

***Warning:** This product uses a laser diode. Refer to caution statements.

***Capacity values are in microfarads (μ F) unless specified otherwise, P=Pico-farads (pF), F= Farads (F).**





***Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM), 1M=1,000k (OHM).**

***The marking (RTL) indicates the retention time is limited for this item. After the discontinuation of this assembly in production, it will no longer be available.**

***“(IA)-(IF)”**, marks in Remarks indicate languages of instruction manuals. [(IA): English/ German, (IB): Spanish/ French, (IC): English, (ID): Polish, (IE): Swedish/ Danish, (IF): Italian/ Dutch]

***Parts indicated with PAVC-CSG in the Remarks column are supplied by PAVC-CSG.**


***All parts except parts indicated with (PAVC-CSG) in the Remarks column are supplied by PAVCG.**

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
	RFKB79119C	MAIN P.C.B.		(RTL)EB
	RFKB79119DT	MAIN P.C.B.		(RTL)EP
	RFKB79119BT	MAIN P.C.B.		(RTL)EC
	RFKB79119AT	MAIN P.C.B.		(RTL)EG
	RFKB79119D	MAIN P.C.B.		(RTL)EBL
C1502	F1J1E104A081	25V 0.1U	1	
C1503	F2A1A6810022	10V 680P	1	
C1504	F2A1E1010067	25V 100U	1	
C1506	EEUFM1E221B	25V 220U	1	
C1508	ECJ1VB1A105K	10V 1U	1	
C1509	F1H1H1030006	50V 0.01U	1	
C1510	ECJ1VB1A105K	10V 1U	1	
C1511	ECJ1VB1A105K	10V 1U	1	
C1512	ECJ1VB1A105K	10V 1U	1	
C1515	F2A1E4700048	25V 47U	1	
C1518	F2A1A1010072	10V 100U	1	
C1520	ECJ1VB1A105K	10V 1U	1	
C1522	ECJ1VB1A105K	10V 1U	1	
C1523	F2A1A470A388	10V 47U	1	
C1524	F2A1A101A389	10V 100U	1	
C1525	F1H1C104A042	16V 0.1U	1	
C1535	ECJ1VB1A105K	10V 1U	1	
C1536	F1J0J106A014	6.3V 10U	1	
C1538	ECJ1VB1A105K	10V 1U	1	
C1539	ECJ1VB1A105K	10V 1U	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C1540	F1H1H1030006	50V 0.01U	1	
C3001	F1H1C104A042	16V 0.1U	1	
C3002	F1H1H1030006	50V 0.01U	1	
C3003	F1H1C104A042	16V 0.1U	1	
C3004	F1H1C104A042	16V 0.1U	1	
C3005	F2A0J471A016	6.3V 470U	1	
C3006	F2A0J471A016	6.3V 470U	1	
C3007	F2A1A4710038	10V 470U	1	
C3008	F2A1A1010072	10V 100U	1	
C3009	F2A1A4710038	10V 470U	1	
C3010	F2A1A1010072	10V 100U	1	
C3011	F1H1C104A042	16V 0.1U	1	
C3012	F2A1A4710038	10V 470U	1	
C3013	F2A1A1010072	10V 100U	1	
C3014	F1H1C104A042	16V 0.1U	1	
C3015	F1H1C104A042	16V 0.1U	1	
C3016	F1H1C104A042	16V 0.1U	1	
C3018	F1H1C104A042	16V 0.1U	1	
C3020	F1H1C104A042	16V 0.1U	1	
C3022	F1H1C104A042	16V 0.1U	1	
C3024	F1H0J1050012	6.3V 1U	1	
C3025	F1H1C104A042	16V 0.1U	1	
C3026	F1H0J1050012	6.3V 1U	1	
C3027	F1H1C104A042	16V 0.1U	1	
C3028	F1H0J1050012	6.3V 1U	1	
C3029	F1H1C104A042	16V 0.1U	1	
C3031	F1H1H1030006	50V 0.01U	1	
C3032	ECEA0JKA101B	6.3V 100U	1	
C3033	F1H1H1030006	50V 0.01U	1	
C3034	F1H1H1030006	50V 0.01U	1	
C3035	ECEA0JKA101B	6.3V 100U	1	
C3036	F1H1C104A042	16V 0.1U	1	
C3037	F1H1C104A042	16V 0.1U	1	
C3038	F1H1C104A042	16V 0.1U	1	
C3039	F1H1C104A042	16V 0.1U	1	
C3040	F1H1C104A042	16V 0.1U	1	
C3041	F1H1H330A736	50V 33P	1	
C3058	ECJ1VC1H471J	50V 470P	1	
C3060	ECJ1VC1H471J	50V 470P	1	
C3070	F1H1H1020005	50V 0.001U	1	
C3071	F1H1H1020005	50V 0.001U	1	
C3072	F1H1C104A042	16V 0.1U	1	
C3910	F2A1H100A236	50V 10U	1	
C3911	F2A1H100A236	50V 10U	1	
C3914	F2A1H100A236	50V 10U	1	
C3915	F2A1H100A236	50V 10U	1	
C3916	F2A1H1R0A236	50V 1U	1	
C3917	F2A1H1R0A236	50V 1U	1	
C3918	F2A1H100A236	50V 10U	1	
C3919	F2A1H100A236	50V 10U	1	
C3928	F2A1H1R0A638	50V 1U	1	
C3929	F2A1H1R0A638	50V 1U	1	
C3935	F2A1E2210050	25V 220U	1	
C3953	ECJ1VC1H471J	50V 470P	1	
C3954	ECJ1VC1H471J	50V 470P	1	
C3955	ECJ1VC1H221J	50V 220P	1	
C3956	ECJ1VC1H221J	50V 220P	1	
C3957	ECJ1VC1H471J	50V 470P	1	
C3958	ECJ1VC1H471J	50V 470P	1	
C3961	ECJ1VC1H221J	50V 220P	1	
C3962	ECJ1VC1H221J	50V 220P	1	
C4003	F1H0J1050012	6.3V 1U	1	
C4008	F2A1E1010067	25V 100U	1	
C4019	F2A1V100A534	35V 10U	1	
C4021	F2A1V100A534	35V 10U	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C4023	F2A1H1R0A236	50V 1U	1	
C4024	F2A1E1010067	25V 100U	1	
C4025	F2A1H1R0A236	50V 1U	1	
C4027	F2A1H100A236	50V 10U	1	
C4028	F2A1H100A236	50V 10U	1	
C4033	F2A1C470A637	16V 47U	1	
C4034	F2A1C470A637	16V 47U	1	
C4055	F1H1C104A008	16V 0.1U	1	
C4056	F2A1C471A628	16V 470U	1	
C4057	ECJ2VC1H330J	50V 33P	1	
C4059	ECQV1H104JL3	50V 0.1U	1	
C4060	ECJ2VC1H330J	50V 33P	1	
C4061	F1H1C104A008	16V 0.1U	1	
C4062	F2A1C470A637	16V 47U	1	
C4063	F2A1C470A637	16V 47U	1	
C4064	F2A1C470A637	16V 47U	1	
C4065	F1H1C104A008	16V 0.1U	1	
C4067	F2A1E4700048	25V 47U	1	
C4070	F2A1C470A637	16V 47U	1	
C4072	F2A1C470A637	16V 47U	1	
C4082	ECJ2VC1H561J	50V 560P	1	
C4083	ECJ2VC1H561J	50V 560P	1	
C4092	F2A1C101A637	16V 100U	1	
C4901	F2A0J470A599	6.3V 47U	1	
C4902	F1H1C104A008	16V 0.1U	1	
C4903	F2A1E4700048	25V 47U	1	
C4904	F1H1C104A008	16V 0.1U	1	
C7301	F1H1C104A042	16V 0.1U	1	EBS,EPK,EPS,EBLS,ECK,ECS
C7301	F1H1H1030006	50V 0.01U	1	EGK,EGS
C7303	ECA1CAK101XB	16V 100U	1	
C7304	F1H1C104A008	16V 0.1U	1	EGK,EGS
C7305	ECA1CAK101XB	16V 100U	1	EBS,EPK,EPS,EBLS,ECK,ECS
C7306	F1H1H1030006	50V 0.01U	1	EBS,EPK,EPS,EBLS,ECK,ECS
C7307	ECJ1VC1H100D	50V 10P	1	EBS,EPK,EPS,EBLS,ECK,ECS
C7308	ECJ1VC1H100D	50V 10P	1	EBS,EPK,EPS,EBLS,ECK,ECS
C7309	ECJ1VB1H152K	50V 1500P	1	EGK,EGS
C7309	F1H1H1010005	50V 100P	1	EBS,EPK,EPS,EBLS,ECK,ECS
C7310	ECJ1VB1H152K	50V 1500P	1	EGK,EGS
C7310	F1H1H1010005	50V 100P	1	EBS,EPK,EPS,EBLS,ECK,ECS
C7311	F1H1H1010005	50V 100P	1	ECK,ECS
C7312	F2A1V100A384	35V 10U	1	
C7313	F2A1V100A384	35V 10U	1	
C7314	F1H1C104A008	16V 0.1U	1	EBS,EPK,EPS,EBLS,ECK,ECS
C7315	ECJ1VB1A474K	10V 0.47U	1	EGK,EGS
C7316	F1H1H472A219	50V 4.7U	1	EGK,EGS
C7317	ECA1CAK470XB	16V 47U	1	
C7318	F2A1V100A384	35V 10U	1	ECK,ECS
C7323	F1H1H1020005	50V 0.001U	1	EBS,EPK,EPS,EBLS,ECK,ECS
C7324	F1H1C104A008	16V 0.1U	1	EBS,EPK,EPS,EBLS,ECK,ECS
C7324	F1H1H1030006	50V 0.01U	1	EGK,EGS
C7325	F1H1H1030006	50V 0.01U	1	EGK,EGS
C7326	ECJ1VB1A474K	10V 0.47U	1	EGK,EGS
C7327	ECJ1VB1H123K	50V 0.012U	1	EGK,EGS
C7328	ECJ1VC1H681J	50V 680P	1	EGK,EGS
C7329	D0YBR0000020	1/10W 0	1	
C7330	D0GB822JA057	1/10W 8.2K	1	EBS,EPK,EPS,EBLS,ECK,ECS
C7330	ECJ1VC1H681J	50V 680P	1	EGK,EGS
C7331	ECJ1VB1H123K	50V 0.012U	1	EGK,EGS
C7332	F1H1C104A008	16V 0.1U	1	EBS,EPK,EPS,EBLS,ECK,ECS
C7333	ECJ1VB1A474K	10V 0.47U	1	EGK,EGS
C7333	F1H1C104A042	16V 0.1U	1	EBS,EPK,EPS,EBLS,ECK,ECS
C7334	ECA1HAK2R2XB	50V 2.2U	1	EBS,EPK,EPS,EBLS,ECK,ECS
C7335	F1H1C104A008	16V 0.1U	1	EBS,EPK,EPS,EBLS,ECK,ECS
C7335	F1H1H1030006	50V 0.01U	1	EGK,EGS
C7336	F1H1C104A042	16V 0.1U	1	EGK,EGS

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C7337	ECJ1VB1A474K	10V 0.47U	1	EGK,EGS
C7338	ECJ1VB1A474K	10V 0.47U	1	EGK,EGS
C7339	F1H1H9R0A735	50V 9P	1	EGK,EGS
C7340	F1H1C104A042	16V 0.1U	1	
C7401	F2A1C471A628	16V 470U	1	
C7402	F1H1H1030006	50V 0.01U	1	
C7404	ECJ1VB1A105K	10V 1U	1	
C7406	ECJ1VB1A105K	10V 1U	1	
C7407	F1H1C104A042	16V 0.1U	1	
C7412	ECJ1VB1A105K	10V 1U	1	
C7413	ECJ1VB1A105K	10V 1U	1	
C7414	ECJ1VB1A105K	10V 1U	1	
C7415	ECJ3YB1C105K	16V 1U	1	
C7417	F1H1C104A042	16V 0.1U	1	
C7418	F2A0J221A458	6.3V 220U	1	
C7419	F1H0J1050012	6.3V 1U	1	
C7439	F1H1C104A042	16V 0.1U	1	
C7501	F1J0J475A008	6.3V 4.7U	1	
C7502	F1H1H1010005	50V 100P	1	
C7503	F1J0J475A008	6.3V 4.7U	1	
C7504	F1H1C104A042	16V 0.1U	1	
C7505	F1H1C104A042	16V 0.1U	1	
C7507	F1H1C104A042	16V 0.1U	1	
C7509	F1H1C104A042	16V 0.1U	1	
C7510	F1H1C104A042	16V 0.1U	1	
C7511	F1H1H1010005	50V 100P	1	
C7512	F1H1C104A042	16V 0.1U	1	
C7513	F2A1V390A386	35V 39U	1	
C7514	F1H1H1030006	50V 0.01U	1	
C7516	ECJ1VC1H180J	50V 18P	1	
C7517	ECJ1VC1H180J	50V 18P	1	
C7518	ECJ1VC1H220J	50V 22P	1	
C7519	ECJ1VC1H180J	50V 18P	1	
C7520	F1H1C104A042	16V 0.1U	1	
C7522	F1H1H1010005	50V 100P	1	
C7523	F1H1H1030006	50V 0.01U	1	
C7524	F1H1C104A042	16V 0.1U	1	
C7528	F1H1C104A042	16V 0.1U	1	
C7531	ECJ1VC1H100D	50V 10P	1	
C7532	ECJ1VC1H100D	50V 10P	1	
C7534	F1H1H1030006	50V 0.01U	1	
C7541	F1H1H4700004	50V 47P	1	
C7542	F1H1C104A042	16V 0.1U	1	
C7543	F1H1H4700004	50V 47P	1	
C7544	F1H1C104A042	16V 0.1U	1	
C7546	F1H0J1050012	6.3V 1U	1	
C7551	F1H1C104A042	16V 0.1U	1	
C7552	ECJ1VC1H221J	50V 220P	1	
C7553	ECJ1VC1H221J	50V 220P	1	
C7554	F1H1H1030006	50V 0.01U	1	
C7555	F1H1H1030006	50V 0.01U	1	
C7556	F1H1H1030006	50V 0.01U	1	
C7557	F1H1H1030006	50V 0.01U	1	
C7558	F1H1H1030006	50V 0.01U	1	
C7565	F2A1E221A815	25V 220U	1	
C7569	ECQB1H392KF3	50V 3900P	1	
C7570	F2A1V560A387	35V 56U	1	
C7571	F2A1H100A454	50V 10U	1	
C7572	F2A1C1210017	16V 120P	1	
C7573	F2A1H100A454	50V 10U	1	
C7577	F1H1C104A042	16V 0.1U	1	
C7578	F2A0J470A012	6.3V 47U	1	
C7579	F2A0J470A012	6.3V 47U	1	
C7581	F1H1H1030006	50V 0.01U	1	
C7583	F1H0J474A002	6.3V 0.47U	1	


Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C7584	F4D55473A013	5.5V 0.047U	1	
C7592	F2A0J470A245	6.3V 47U	1	
D3901	MA2C165001VT	DIODE	1	
D4001	MA2C165001VT	DIODE	1	
D4005	MA3Z142D0LG	DIODE	1	
D4006	MA3Z142D0LG	DIODE	1	
D7403	MA2C165001VT	DIODE	1	
D7501	B0BA03600021	DIODE	1	
D7502	B0ACCK000005	DIODE	1	
D7504	MAZ4220NLF	DIODE	1	
D7505	B0AADM000003	DIODE	1	
D7506	B0AADM000003	DIODE	1	
D7507	B0JAMD000026	DIODE	1	
D7508	MAZ4180NHF	DIODE	1	
D7509	B0JDCE000002	DIODE	1	
D7510	MA2C165001VT	DIODE	1	
DP7501	A2BD00000144	DISPLAY TUBE	1	
IC1501	C0DAZJH00003	IC	1	
IC1505	C0CBCBC00174	IC	1	
IC1506	C0DAEYH00002	IC	1	
IC1507	C0CBCDD00027	IC	1	
IC1510	C0CBCDG00006	IC	1	
IC1520	C0CBCDC00052	IC	1	
IC1521	C0CBCBD00048	IC	1	
IC3001	C1AB00002379	IC	1	
IC4009	C0ABBB000216	IC	1	
IC4011	C0DBAHD00013	IC	1	
IC4012	C0ABBB000118	IC	1	
IC4901	B3ZAZ0000017	IC	1	
IC7301	C0ZBZ0001081	IC	1	EGK,EGS
IC7301	C1AB00002225	IC	1	EBS,EPK,EPS,EBLS,ECK,ECS
IC7302	C0EAH0000051	IC	1	EBS,EPK,EPS,EBLS,ECK,ECS
IC7401	C0CBCYG00004	IC	1	
IC7402	C0CBCDC00052	IC	1	
IC7403	C0CBCDD00025	IC	1	
IC7404	RFKFM6016KT	IC	1	(PAVC-CSG)
IC7501	C2CBJG000713	IC	1	
IC7502	C0EBE0000504	IC	1	
IC7504	C0HBB0000044	IC	1	
IC7505	C0EBJ0000336	IC	1	
IC7506	C0EBE0000457	IC	1	
IP1501	K5H302100004	IC PROTECTOR	1	
IP7501	K5H7512A0010	IC PROTECTOR	1	
IR7501	PNA4618M09VT	REMOTE SENSOR	1	
JK3001	K1U412B00001	JACK,OUT IN1	1	
JK3002	K2HE1YYB0002	JACK,	1	
JK3901	K1FB242B0005	JACK,OUT S1	1	
JK3903	K2HA306B0085	JACK,COMPONENT VIDEO OUT	1	
JW7501	REZD0019	MAIN/FRONT CABLE	1	
K3001	D0YBR0000020	1/10W 0	1	
K3002	D0YBR0000020	1/10W 0	1	
K3003	D0YBR0000020	1/10W 0	1	
K3004	D0YBR0000020	1/10W 0	1	
K3005	D0YBR0000020	1/10W 0	1	
K7303	D0YBR0000020	1/10W 0	1	EBS,EPK,EPS,EBLS,ECK,ECS
K7306	D0YBR0000020	1/10W 0	1	EGK,EGS

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
K7308	D0YBR0000020	1/10W 0	1	
K7501	D0YBR0000020	1/10W 0	1	
K7502	D0YBR0000020	1/10W 0	1	
K7506	D0YBR0000020	1/10W 0	1	
K7507	D0YBR0000020	1/10W 0	1	
K7508	D0YBR0000020	1/10W 0	1	
L4901	G0C220KA0065	COIL 22UH	1	
L7303	G0C1R0JA0019	COIL 1UH	1	EBS,EPK,EPS,EBLS,ECK,ECS
L7304	G0C2R2JA0019	COIL 2.2UH	1	EBS,EPK,EPS,EBLS,ECK,ECS
L7304	G0C470JA0019	COIL 47UH	1	EGK,EGS
L7401	G0A220GA0026	COIL 22UH	1	
L7402	G0A220GA0026	COIL 22UH	1	
L7501	G0C390JA0055	COIL 39UH	1	
LB1502	J0JKB0000003	COIL	1	
LB1503	J0JKB0000003	COIL	1	
LB1504	J0JKB0000003	COIL	1	
LB1506	J0JKB0000003	COIL	1	
LB3001	J0JGC0000020	COIL	1	
LB3002	J0JGC0000020	COIL	1	
LB3003	J0JGC0000020	COIL	1	
LB3006	J0JBC0000019	COIL	1	
LB3008	J0JBC0000019	COIL	1	
LB3009	D0YBR0000020	1/10W 0	1	
LB3010	D0YBR0000020	1/10W 0	1	
LB3011	D0YBR0000020	1/10W 0	1	
LB3012	J0JBC0000011	COIL	1	
LB3013	J0JBC0000011	COIL	1	
LB3907	J0JBC0000011	COIL	1	
LB3908	J0JBC0000011	COIL	1	
LB3911	J0JGC0000020	COIL	1	
LB3912	J0JBC0000011	COIL	1	
LB3913	J0JBC0000011	COIL	1	
LB7301	J0JCC0000124	COIL	1	EBS,EPK,EPS,EBLS,ECK,ECS
LB7302	J0JCC0000124	COIL	1	EBS,EPK,EPS,EBLS,ECK,ECS
LB7303	J0JCC0000080	COIL	1	EBS,EPK,EPS,EBLS,ECK,ECS
LB7304	J0JHC0000032	COIL	1	
LB7401	J0JGC0000020	COIL	1	
LB7402	J0JKB0000012	COIL	1	
LB7403	J0JKB0000012	COIL	1	
LB7404	J0JKB0000012	COIL	1	
LB7405	J0JKB0000012	COIL	1	
LB7406	J0JCC0000164	COIL	1	
LB7407	J0JKB0000012	COIL	1	
LB7408	J0JCC0000164	COIL	1	
LB7409	J0JKB0000012	COIL	1	
LB7410	J0JCC0000103	COIL	1	
LB7411	J0JCC0000164	COIL	1	
LB7412	J0JCC0000164	COIL	1	
LB7413	J0JCC0000164	COIL	1	
LB7414	J0JCC0000164	COIL	1	
LB7415	J0JCC0000103	COIL	1	
LB7416	J0JCC0000164	COIL	1	
LB7417	J0JCC0000103	COIL	1	
LB7418	J0JCC0000103	COIL	1	
LB7419	J0JCC0000103	COIL	1	
LB7420	J0JCC0000164	COIL	1	
LB7501	D0YBR0000020	1/10W 0	1	
LB7502	D0YBR0000020	1/10W 0	1	
LB7507	D0YBR0000020	1/10W 0	1	
LB7508	D0YBR0000020	1/10W 0	1	
LB7509	J0JCC0000060	COIL	1	
LB7510	D0YBR0000020	1/10W 0	1	
LB7515	D0YBR0000020	1/10W 0	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
LB7516	D0YBR0000020	1/10W 0	1	
LB7517	D0YBR0000020	1/10W 0	1	
P1501	K1KA19A00007	CONNECTOR(19P)	1	
P7402	K1KY64A00001	CONNECTOR(64P)	1	
PP7401	K1KA18AA0288	CONNECTOR(18P)	1	
Q4006	2SD132800L	TRANSISTOR	1	
Q4007	2SD132800L	TRANSISTOR	1	
Q4008	2SD132800L	TRANSISTOR	1	
Q4009	2SD132800L	TRANSISTOR	1	
Q7401	2SD1819ARL	TRANSISTOR	1	
Q7402	2SD1819A0L	TRANSISTOR	1	
Q7501	2SB1218A0L	TRANSISTOR	1	
Q7502	2SD1819A0L	TRANSISTOR	1	
Q7503	2SB1218A0L	TRANSISTOR	1	
Q7504	2SD1819A0L	TRANSISTOR	1	
Q7506	2SD0601A0L	TRANSISTOR	1	
Q7507	2SD0601A0L	TRANSISTOR	1	
Q7508	2SD1819A0L	TRANSISTOR	1	
Q7510	B1BABK000001	TRANSISTOR	1	
QR1501	B1GBCFNN0009	TRANSISTOR	1	
QR1502	B1GBCFNN0009	TRANSISTOR	1	
QR4002	B1GDCFJJ0008	DIGITAL TRANSISTOR	1	
QR4003	B1GBCFJJ0007	TRANSISTOR	1	
QR4004	B1GBCFJJ0007	TRANSISTOR	1	
QR7401	B1GBCFNN0009	TRANSISTOR	1	
QR7402	B1GDCFLL0012	TRANSISTOR	1	
QR7403	B1GBCFJA0006	TRANSISTOR	1	
QR7404	B1GBCFJA0006	TRANSISTOR	1	
QR7506	B1GBCFLL0012	TRANSISTOR	1	
QR7507	B1GBCFNA0010	TRANSISTOR	1	
QR7508	B1GBCFJN0009	TRANSISTOR	1	
R1509	ERJ3RBD393V	1/16W 39K	1	
R1510	ERJ3RBD113V	1/16W 11K	1	
R1511	ERJ3RBD152V	1/16W 1.5K	1	
R1518	D0GB472JA057	1/10W 4.7K	1	
R1519	D0GB472JA057	1/10W 4.7K	1	
R3001	D0GB102JA057	1/10W 1K	1	
R3003	D0GB102JA057	1/10W 1K	1	
R3006	D0YBR0000020	1/10W 0	1	
R3007	D0GB330JA057	1/10W 33	1	
R3009	D0GB104JA057	1/10W 100K	1	
R3055	D0GB750JA057	1/10W 75	1	
R3057	D0GB750JA057	1/10W 75	1	
R3059	D0GB750JA057	1/10W 75	1	
R3060	D0GB750JA057	1/10W 75	1	
R3061	D0GB750JA057	1/10W 75	1	
R3062	D0GB750JA057	1/10W 75	1	
R3901	D1BB75R0A010	2W 75	1	
R3902	D1BB75R0A010	2W 75	1	
R3903	D1BB75R0A010	2W 75	1	
R3912	D0GB103JA057	1/10W 10K	1	
R3913	D0GB103JA057	1/10W 10K	1	
R3914	D0GB471JA057	1/10W 470	1	
R3918	D0GB471JA057	1/10W 470	1	
R3919	D1BB75R0A010	2W 75	1	
R3920	D1BB75R0A010	2W 75	1	
R3921	D1BB75R0A010	2W 75	1	
R3922	D0GB471JA057	1/10W 470	1	
R3923	D0GB471JA057	1/10W 470	1	
R3924	ERDS2TJ221T	1/4W 220	1	







Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R3925	D1BB75R0A010	2W 75	1	
R3926	D1BB75R0A010	2W 75	1	
R3927	D1BB75R0A010	2W 75	1	
R3928	D0GB750JA057	1/10W 75	1	
R3929	D0GB750JA057	1/10W 75	1	
R3930	D0GB750JA057	1/10W 75	1	
R3932	D0GB750JA057	1/10W 75	1	
R3934	D0GB750JA057	1/10W 75	1	
R3935	D0GB750JA057	1/10W 75	1	
R3975	D0GB101JA057	1/10W 100	1	
R3976	D0GB101JA057	1/10W 100	1	
R3983	D0GB103JA057	1/10W 10K	1	
R3984	D0GB103JA057	1/10W 10K	1	
R3987	D0GB473JA057	1/10W 47K	1	
R3988	D0GB102JA057	1/10W 1K	1	
R3989	D0GB102JA057	1/10W 1K	1	
R3990	D0GB473JA057	1/10W 47K	1	
R3991	D0GB473JA057	1/10W 47K	1	
R3992	D0GB102JA057	1/10W 1K	1	
R3993	D0GB102JA057	1/10W 1K	1	
R3994	D0GB473JA057	1/10W 47K	1	
R4003	D0GB821JA057	1/10W 820	1	
R4004	D0GB103JA057	1/10W 10K	1	
R4005	D0GB821JA057	1/10W 820	1	
R4006	D0GB823JA057	1/10W 82K	1	
R4010	D0GB473JA057	1/10W 47K	1	
R4011	D0GB473JA057	1/10W 47K	1	
R4013	D0GB823JA057	1/10W 82K	1	
R4046	D0HB682ZA002	1/16W 6.8K	1	
R4047	D0HB682ZA002	1/16W 6.8K	1	
R4055	D0HB123ZA002	1/16W 12K	1	
R4057	D0HB123ZA002	1/16W 12K	1	
R4066	D0HB103ZA002	1/10W 10K	1	
R4067	D0HB103ZA002	1/10W 10K	1	
R4071	D0GB473JA057	1/10W 47K	1	
R4074	D0GB473JA057	1/10W 47K	1	
R4076	D0GB821JA057	1/10W 820	1	
R4077	D0GB101JA057	1/10W 100	1	
R4078	D0GB272JA057	1/10W 2.7K	1	
R4079	D0GB272JA057	1/10W 2.7K	1	
R4080	D0GB101JA057	1/10W 100	1	
R4081	D0GB821JA057	1/10W 820	1	
R4088	D0GB272JA057	1/10W 2.7K	1	
R4089	D0GB272JA057	1/10W 2.7K	1	
R4090	D0GB121JA057	1/10W 120	1	
R4093	D0GB121JA057	1/10W 120	1	
R4094	D0GB223JA057	1/10W 22K	1	
R7304	D0GB101JA057	1/10W 100	1	EBS,EPK,EPS,EBLS,ECK,ECS
R7305	ERJ3GEYF101V	1/10W 100	1	EGK,EGS
R7306	D1BB39010002	2W 390	1	EGK,EGS
R7307	D0GB472JA057	1/10W 4.7K	1	EGK,EGS
R7307	D0YBR0000020	1/10W 0	1	EBS,EPK,EPS,EBLS,ECK,ECS
R7308	D0GB752JA057	1/10W 7.5K	1	EGK,EGS
R7311	D0GB221JA057	1/10W 220	1	ECK,ECS
R7312	ERJ3GEYF221V	1/10W 220	1	EBS,EPK,EPS,EBLS,ECK,ECS
R7312	ERJ3GEYF682V	1/10W 6.8K	1	EGK,EGS
R7313	ERJ3GEYF221V	1/10W 220	1	EBS,EPK,EPS,EBLS,ECK,ECS
R7313	ERJ3GEYF682V	1/10W 6.8K	1	EGK,EGS
R7314	D0YBR0000020	1/10W 0	1	ECK,ECS
R7315	D0YBR0000020	1/10W 0	1	ECK,ECS
R7317	D0YBR0000020	1/10W 0	1	
R7318	D1BB33010002	2W 330	1	EGK,EGS
R7319	D0YBR0000020	1/10W 0	1	
R7320	D1BB33010002	2W 330	1	EGK,EGS
R7321	D0GB562JA057	1/10W 5.6K	1	EGK,EGS








Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R7322	D0YBR0000020	1/10W 0	1	EBS,EPK,EPS,EBLS,ECK,ECS
R7323	D0GB562JA057	1/10W 5.6K	1	EGK,EGS
R7324	D0GB221JA057	1/10W 220	1	
R7325	D0GB221JA057	1/10W 220	1	
R7326	D0GB122JA057	1/10W 1.2K	1	EGK,EGS
R7326	D0YBR0000020	1/10W 0	1	EBS,EPK,EPS,EBLS,ECK,ECS
R7401	D0GB104JA057	1/10W 100K	1	
R7402	D0GB103JA057	1/10W 10K	1	
R7403	D0GB153JA057	1/10W 15K	1	
R7404	D0GB223JA057	1/10W 22K	1	
R7405	ERDS2TJ471T	1/4W 470	1	
R7406	D0GB474JA057	1/10W 470K	1	
R7407	D0GB103JA057	1/10W 10K	1	
R7408	D0GB153JA057	1/10W 15K	1	
R7409	D0GB101JA057	1/10W 100	1	
R7410	D0GB821JA057	1/10W 820	1	
R7411	D0GB472JA057	1/10W 4.7K	1	
R7412	D0GB472JA057	1/10W 4.7K	1	
R7414	D0GB472JA057	1/10W 4.7K	1	
R7444	ERJ3RED300V	1/16W 30	1	
R7445	ERJ3RBD682V	1/16W 6.8K	1	
R7446	ERJ3RBD202V	1/16W 2K	1	
R7448	D0GB182JA057	1/10W 1.8K	1	
R7501	D0GB102JA057	1/10W 1K	1	
R7502	D0GB392JA057	1/10W 3.9K	1	
R7503	D0GB104JA057	1/10W 100K	1	
R7504	D0GB102JA057	1/10W 1K	1	
R7505	D1BB1502A010	2W 1.5K	1	
R7506	D0GB104JA057	1/10W 100K	1	
R7507	D1BB15010002	2W 150	1	
R7508	ERJ3GEYF562V	1/10W 5.6K	1	
R7509	D0GB101JA057	1/10W 100	1	
R7510	D0GB101JA057	1/10W 100	1	
R7516	D0GB220JA057	1/10W 22	1	ECK,ECS
R7517	D0GB472JA057	1/10W 4.7K	1	
R7518	ERJ3RBD273V	1/16W 27K	1	
R7520	D0GB103JA057	1/10W 10K	1	
R7521	D0YBR0000020	1/10W 0	1	
R7523	D0YBR0000020	1/10W 0	1	
R7527	D0GB101JA057	1/10W 100	1	
R7528	D0GB101JA057	1/10W 100	1	
R7529	D0GB101JA057	1/10W 100	1	
R7531	D0GB104JA057	1/10W 100K	1	
R7532	D0GB332JA057	1/10W 3.3K	1	
R7533	D0YBR0000020	1/10W 0	1	
R7534	D0GB103JA057	1/10W 10K	1	
R7535	D0GB101JA057	1/10W 100	1	
R7536	D0GB101JA057	1/10W 100	1	
R7537	D0GB101JA057	1/10W 100	1	
R7538	D0YBR0000020	1/10W 0	1	
R7543	D0GB101JA057	1/10W 100	1	
R7544	D0GB101JA057	1/10W 100	1	
R7548	D0GB472JA057	1/10W 4.7K	1	
R7549	D0GB472JA057	1/10W 4.7K	1	
R7558	D0GB202JA057	1/10W 2K	1	
R7559	D0GB202JA057	1/10W 2K	1	
R7561	D0GB101JA057	1/10W 100	1	
R7562	D0GB101JA057	1/10W 100	1	
R7564	D0GB101JA057	1/10W 100	1	
R7565	D0GB101JA057	1/10W 100	1	
R7566	D0GB101JA057	1/10W 100	1	
R7567	D0GB101JA057	1/10W 100	1	
R7569	D0GB223JA057	1/10W 22K	1	
R7570	D0GB392JA057	1/10W 3.9K	1	
R7571	D0GB101JA057	1/10W 100	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R7572	D0GB101JA057	1/10W 100	1	
R7576	D0GB102JA057	1/10W 1K	1	
R7577	D0GB103JA057	1/10W 10K	1	
R7579	D0GB223JA057	1/10W 22K	1	
R7582	D0GB104JA057	1/10W 100K	1	
R7583	D0GB472JA057	1/10W 4.7K	1	
R7584	D0GB473JA057	1/10W 47K	1	
R7585	D0GB225JA057	1/10W 2200K	1	
R7586	D0GB273JA057	1/10W 27K	1	
R7587	D0GB224JA057	1/10W 220K	1	
R7588	D0GB104JA057	1/10W 100K	1	
R7589	D0GB221JA057	1/10W 220	1	
R7590	D0GB104JA057	1/10W 100K	1	
R7597	D0GB822JA057	1/10W 8.2K	1	
R7598	D0GB822JA057	1/10W 8.2K	1	
R7599	D0GB822JA057	1/10W 8.2K	1	
R7600	D0GB103JA057	1/10W 10K	1	
R7601	D0GB102JA057	1/10W 1K	1	
R7606	ERJ3GEYF393V	1/10W 39K	1	
R7607	D0GB101JA057	1/10W 100	1	
R7608	ERJ3GEYF433V	1/10W 43K	1	
R7612	D0GB562JA057	1/10W 5.6K	1	
R7614	D0GB470JA057	1/10W 47	1	
R7615	D0GB473JA057	1/10W 47K	1	
R7616	D0GB473JA057	1/10W 47K	1	
R7617	ERDS2TJ271T	1/4W 270	1	
R7619	D0GB103JA057	1/10W 10K	1	
R7620	D0GB473JA057	1/10W 47K	1	
R7621	D0GB104JA057	1/10W 100K	1	
R7622	D0GB153JA057	1/10W 15K	1	
R7623	D0GB181JA057	1/10W 180	1	
R7639	D0GB272JA057	1/10W 2.7K	1	
R7640	D0GB272JA057	1/10W 2.7K	1	
R7641	D0GB272JA057	1/10W 2.7K	1	
R7642	D0GB562JA057	1/10W 5.6K	1	
R7644	D0GB562JA057	1/10W 5.6K	1	
R7648	ERDS2TJ470T	1/4W 47	1	
R7651	D0GB472JA057	1/10W 4.7K	1	
R7653	D0GB101JA057	1/10W 100	1	
R7655	D0GB101JA057	1/10W 100	1	
S7501	EVQ11A04M	SWITCH,REC	1	
S7502	EVQ11A04M	SWITCH,PLAY	1	
S7503	EVQ11A04M	SWITCH,STOP	1	
S7504	EVQ11A04M	SWITCH,SELECT	1	
S7506	EVQ11A04M	SWITCH,CH DOWN	1	
S7507	EVQ11A04M	SWITCH,CH UP	1	
S7508	EVQ11A04M	SWITCH,EX LINK	1	
T7501	G4D1A0000118	TRANSFORMER	1	
W501	D0YBR0000020	1/10W 0	1	
W502	D0YBR0000020	1/10W 0	1	
W503	D0YBR0000020	1/10W 0	1	
W504	D0YBR0000020	1/10W 0	1	
W505	D0YBR0000020	1/10W 0	1	
W506	D0YBR0000020	1/10W 0	1	
W507	D0YBR0000020	1/10W 0	1	
W508	D0YBR0000020	1/10W 0	1	
W509	D0YBR0000020	1/10W 0	1	
W510	D0YBR0000020	1/10W 0	1	
W511	D0YBR0000020	1/10W 0	1	
W512	D0YBR0000020	1/10W 0	1	
W513	D0YBR0000020	1/10W 0	1	
W514	D0YBR0000020	1/10W 0	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
W515	D0YBR0000020	1/10W 0	1	
W516	D0YBR0000020	1/10W 0	1	
W517	D0YBR0000020	1/10W 0	1	
W518	D0YBR0000020	1/10W 0	1	
W519	D0YBR0000020	1/10W 0	1	
W520	D0YBR0000020	1/10W 0	1	
W521	D0YBR0000020	1/10W 0	1	
W522	D0YBR0000020	1/10W 0	1	
W523	D0YBR0000020	1/10W 0	1	
W524	D0YBR0000020	1/10W 0	1	
W525	D0YBR0000020	1/10W 0	1	
W527	D0YBR0000020	1/10W 0	1	
W528	D0YBR0000020	1/10W 0	1	
W529	ERJ6GEY0R00Z	1/8W 0	1	
W530	ERJ6GEY0R00Z	1/8W 0	1	
W531	ERJ6GEY0R00Z	1/8W 0	1	
W532	ERJ6GEY0R00Z	1/8W 0	1	
W533	ERJ6GEY0R00Z	1/8W 0	1	
W534	D0YBR0000020	1/10W 0	1	
W535	D0YBR0000020	1/10W 0	1	
W536	D0YBR0000020	1/10W 0	1	
W537	D0YBR0000020	1/10W 0	1	
W538	D0YBR0000020	1/10W 0	1	
X7301	H0D245500016	CRYSTAL OSCILLATOR	1	EBS,EPK,EPS,EBLS,ECK,ECS
X7301	H0H400400006	CRYSTAL OSCILLATOR	1	EGK,EGS
X7501	H0D100500018	CRYSTAL OSCILLATOR	1	
X7502	H0A327200108	CRYSTAL OSCILLATOR	1	
■	VEP07A91C	TUNER P.C.B.		(RTL)EB
■	VEP07A91D	TUNER P.C.B.		(RTL)EP,EBL
■	VEP07A91B	TUNER P.C.B.		(RTL)EC
■	VEP07A91A	TUNER P.C.B.		(RTL)EG
C7809	F1H1H1030006	50V 0.01U	1	
C7813	F2A0J470A599	6.3V 47U	1	
C7814	F2A1H2200032	50V 22U	1	
C7817	F2A0J470A599	6.3V 47U	1	
C7818	F1H1H330A736	50V 33P	1	
C7819	F1H1H330A736	50V 33P	1	
C7820	F1H1C104A042	16V 0.1U	1	
C7821	F1H1H1030006	50V 0.01U	1	
C7822	F1H1H1030006	50V 0.01U	1	
C7824	F2A0J470A599	6.3V 47U	1	
C7825	F1H1H1010005	50V 100P	1	EPK,EPS,EBLS
C7828	F1H1H1030006	50V 0.01U	1	
C7838	F2A1E4700048	25V 47U	1	ECK,ECS
D7802	B0BA03000015	DIODE	1	
K7808	D0YBR0000020	1/10W 0	1	
K7809	D0YBR0000020	1/10W 0	1	EBS,ECK,ECS,EGK,EGS
K7810	D0YBR0000020	1/10W 0	1	
LB7802	J0JHC0000032	COIL	1	
LB7803	J0JHC0000032	COIL	1	
LB7804	J0JHC0000032	COIL	1	
PS7801	K1KB18B00012	CONNECTOR(18P)	1	
Q7802	2SB1218A0L	TRANSISTOR	1	EPK,EPS,EBLS
R7811	ERDS2TJ102T	1/4W 1K	1	
R7812	ERJ6GEYJ681V	1/8W 680	1	EPK,EPS,EBLS

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R7815	D0GB471JA057	1/10W 470	1	
R7816	D0GB471JA057	1/10W 470	1	
R7818	D0GB221JA057	1/10W 220	1	EPK,EPS,EBLS
R7820	D0GB102JA057	1/10W 1K	1	EPK,EPS,EBLS
R7844	ERJ6GEYJ681V	1/8W 680	1	EPK,EPS,EBLS
R7845	D0YBR0000020	1/10W 0	1	ECK,ECS
R7846	D0GB562JA057	1/10W 5.6K	1	ECK,ECS
TU7801	ENG7501GF	TUNER	1	ECK,ECS
TU7801	ENG7502GF	TUNER	1	EPK,EPS,EBLS
TU7801	ENG7503GF	TUNER	1	EGK,EGS
TU7801	ENG7505GF	TUNER	1	EBS
W501	ERJ6GEY0R00Z	1/8W 0	1	
W502	D0YBR0000020	1/10W 0	1	
W503	ERJ6GEY0R00Z	1/8W 0	1	
W504	ERJ6GEY0R00Z	1/8W 0	1	
W505	ERJ6GEY0R00Z	1/8W 0	1	
W506	D0YBR0000020	1/10W 0	1	
W507	D0YBR0000020	1/10W 0	1	
W508	ERJ6GEY0R00Z	1/8W 0	1	
W509	D0YBR0000020	1/10W 0	1	
W510	D0YBR0000020	1/10W 0	1	
W511	D0YBR0000020	1/10W 0	1	
W512	D0YBR0000020	1/10W 0	1	
W513	D0YBR0000020	1/10W 0	1	
W514	ERJ6GEY0R00Z	1/8W 0	1	
W515	D0YBR0000020	1/10W 0	1	
W516	D0YBR0000020	1/10W 0	1	
W517	ERJ8GEY0R00V	1/4W 0	1	
W518	ERJ6GEY0R00Z	1/8W 0	1	
W519	D0YBR0000020	1/10W 0	1	
W520	D0YBR0000020	1/10W 0	1	
W521	ERJ8GEY0R00V	1/4W 0	1	
W523	ERJ6GEY0R00Z	1/8W 0	1	
W524	D0YBR0000020	1/10W 0	1	
W525	D0YBR0000020	1/10W 0	1	
W526	D0YBR0000020	1/10W 0	1	
W527	D0YBR0000020	1/10W 0	1	
W529	D0YBR0000020	1/10W 0	1	
W530	ERJ6GEY0R00Z	1/8W 0	1	
W531	ERJ6GEY0R00Z	1/8W 0	1	
W532	ERJ6GEY0R00Z	1/8W 0	1	
W533	ERJ6GEY0R00Z	1/8W 0	1	
W534	ERJ6GEY0R00Z	1/8W 0	1	
W535	D0YBR0000020	1/10W 0	1	
W536	D0YBR0000020	1/10W 0	1	
W537	ERJ6GEY0R00Z	1/8W 0	1	
W538	ERJ6GEY0R00Z	1/8W 0	1	
W539	ERJ6GEY0R00Z	1/8W 0	1	
W540	ERJ6GEY0R00Z	1/8W 0	1	
W541	ERJ6GEY0R00Z	1/8W 0	1	
W542	ERJ6GEY0R00Z	1/8W 0	1	
W543	D0YBR0000020	1/10W 0	1	
W544	D0YBR0000020	1/10W 0	1	
W545	ERJ6GEY0R00Z	1/8W 0	1	
W546	ERJ6GEY0R00Z	1/8W 0	1	
W547	D0YBR0000020	1/10W 0	1	
W548	D0YBR0000020	1/10W 0	1	
W549	D0YBR0000020	1/10W 0	1	
W550	D0YBR0000020	1/10W 0	1	
■	VEP71109A	POWER SUPPLY P.C.B.		(RTL)

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C1120	ECQU2A683MLC	100V 0.068U	1	
C1121	ECQU2A223MLC	100V 0.022U	1	
C1122	ECKWNA102MEV	250V 1000P	1	
C1123	ECKWNA102MEV	250V 1000P	1	
C1125	ECKWNA102MEV	250V 1000P	1	
C1143	F2B2W4700003	450V 47U	1	
C1150	EEUFM1V680B	35V 68U	1	
C1151	F1B3D102A011	2V 1000P	1	
C1152	ECJ2VC1H331J	50V 330P	1	
C1153	ECJGVB1H222K	50V 2200P	1	
C1154	ECJGVB1H102K	50V 1000P	1	
C1200	F1J1E104A081	25V 0.1U	1	
C1201	ECJ2VB1E473K	25V 0.047U	1	
C1271	F2A1E1820018	25V 1800U	1	
C1272	F2A1E6810017	25V 680U	1	
C1610	F2A1A1220012	10V 1200U	1	
C1611	F2A1A1220012	10V 1200U	1	
C1710	F2A0J6810007	6.3V 680P	1	
C1711	F2A0J3310059	6.3V 330U	1	
D1140	B0EDKT000009	DIODE	1	
D1151	B0HAGM000006	DIODE	1	
D1152	MAZ4100NMF	DIODE	1	
D1155	MAZ73000BC	DIODE	1	
D1156	MA2C165001VT	DIODE	1	
D1157	B0HADV000001	DIODE	1	
D1201	B0JCNG000003	DIODE	1	
D1202	B0JCNG000003	DIODE	1	
D1203	B0JCNG000003	DIODE	1	
D1601	B0JAQG000005	DIODE	1	
D1701	B0JAMG000010	DIODE	1	
D1702	B0JAMG000010	DIODE	1	
F1101	K5D202BK0005	FUSE	1	
IC1150	C0DACZH00017	IC	1	
IC1200	C0DAEMB00003	IC	1	
L1120	G0B233D00001	COIL	1	
L1121	G0B233D00001	COIL	1	
L1270	G0A100H00025	COIL 10UH	1	
L1600	G0A100H00025	COIL 10UH	1	
L1700	G0A100H00025	COIL 10UH	1	
LB1126	ERJ6GEY0R00Z	1/8W 0	1	
LB1127	J0JHC0000048	FILTER	1	
LB1200	J0JKB0000003	COIL	1	
LB1600	J0JKB0000003	COIL	1	
LB1700	J0JKB0000003	COIL	1	
P1101	K2AA2H000007	AC INLET	1	
P1102	K1KB19AA0032	CONNECTOR(19P)	1	
Q1200	B3PBA0000402	PHOTO COUPLER	1	
R1150	ERJ6GEYJ180V	1/8W 18	1	
R1151	ERJ6GEYJ682V	1/8W 6.8K	1	
R1152	ERJ6GEYJ103V	1/8W 10K	1	
R1153	ERJ6GEYJ180V	1/8W 18	1	
R1154	ERJ6GEYG682V	1/8W 6.8K	1	
R1155	ERJ6GEYG512V	1/8W 5.1K	1	
R1156	ERJ6GEYG103V	1/8W 47K	1	
R1157	ERJ6GEYG222V	1/8W 2.2K	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R1158	ERX2SJR22E	2W 22	1	
R1200	ERJ6GEYG152V	1/10W 1.5K	1	
R1201	ERJ6GEYG393V	1/8W 39K	1	
R1205	ERJ6GEYJ103V	1/8W 10K	1	
R1206	ERJ6GEYG242V	1/8W 2.4K	1	
R1207	ERJ6GEYJ103V	1/8W 10K	1	
R1208	ERJ6GEYJ222V	1/8W 2.2K	1	
R1209	ERJ6GEYJ102V	1/8W 1K	1	
R1210	ERJ6GEYJ102V	1/8W 1K	1	
R1600	ERJ6GEYG681V	1/8W 680	1	
R1601	ERJ6GEYG272V	1/8W 2.7K	1	
R1700	ERJ6GEYG152V	1/10W 1.5K	1	
T1150	ETS28BF1Z6AD	TRANSFORMER	1	
VA1110	ERZVA5V471	SURGE ABSORBER	1	
ZA1103	EYF52BCY	FUSE HOLDER	1	
ZA1104	EYF52BCY	FUSE HOLDER	1	
	VEP70161A	FRONT(L)P.C.B.		(RTL)
S7002	EVQ11A04M	SWITCH,POWER	1	
	VEP73135A	DV JACK P.C.B.		(RTL)
P37001	K1KA06B00181	CONNECTOR(6P)	1	
P37002	K2HZ104B0012	CONNECTOR(104P)	1	
		CASSING/ACCESSORY/PACKING		
1	VEP70161A	FRONT(L)P.C.B.	1	(RTL)
2	VEP73135A	DV JACK P.C.B.	1	(RTL)
3	RFKB79119C	MAIN P.C.B.	1	(RTL)EBS
3	RFKB79119DT	MAIN P.C.B.	1	(RTL)EPK,EPS
3	RFKB79119BT	MAIN P.C.B.	1	(RTL)ECK,ECS
3	RFKB79119AT	MAIN P.C.B.	1	(RTL)EGK,EGS
3	RFKB79119D	MAIN P.C.B.	1	(RTL)EBLS
5	RGR0365A-D1	REAR PANEL	1	EBS,EBLS 
5	RGR0365A-A1	REAR PANEL	1	EPK,EPS,ECK,ECS,EGK,EGS 
6	RHD30111-3	SCREW	18	
7	RHD30119-L	SCREW	12	
8	RMA1979A	DIGITAL ANGLE A	1	
9	RFKNES15EB	RAM/DIGITAL P.C.B. MODULE	1	(RTL)EB
9	RFKNES15EBL	RAM/DIGITAL P.C.B. MODULE	1	(RTL)EBL
9	RFKNES15EP	RAM/DIGITAL P.C.B. MODULE	1	(RTL)EP
9	RFKNES15EC	RAM/DIGITAL P.C.B. MODULE	1	(RTL)EC
9	RFKNES15EG	RAM/DIGITAL P.C.B. MODULE	1	(RTL)EG
10	RMQ1513	HEAT TRANSFER SHEET	1	
12	RKA0144-K	FOOT RUBBER	4	
13	RMC0672	PLATE SPRING	1	
14	RMY0357	HEAT SINK	1	
16	VJF0036	NYLON RIVET	4	
18	RYP1310B-S	FRONT PANEL ASS'Y 1	1	EBS,EBLS
18	RYP1310A-S	FRONT PANEL ASS'Y 1	1	EPS,ECS,EGS
18	RYP1310A-K	FRONT PANEL ASS'Y 1	1	EPK,ECK,EGK
18-1	RGK1968-Q	FL ORNAMENT	1	
18-2	RGK1971-S	REC BUTTON RING	1	
18-3	RYF0798-S	PANEL DOOR ASS'Y	1	EBS,EPS,EBLS,ECS,EGS
18-3	RYF0798-K	PANEL DOOR ASS'Y	1	EPK,ECK,EGK
18-4	RKF0751-K	TRAY DOOR	1	
18-5	VMB3410	BLINDER SPRING	1	
19	RHD30113	SCREW	2	EBS,EPS,EBLS,ECS,EGS

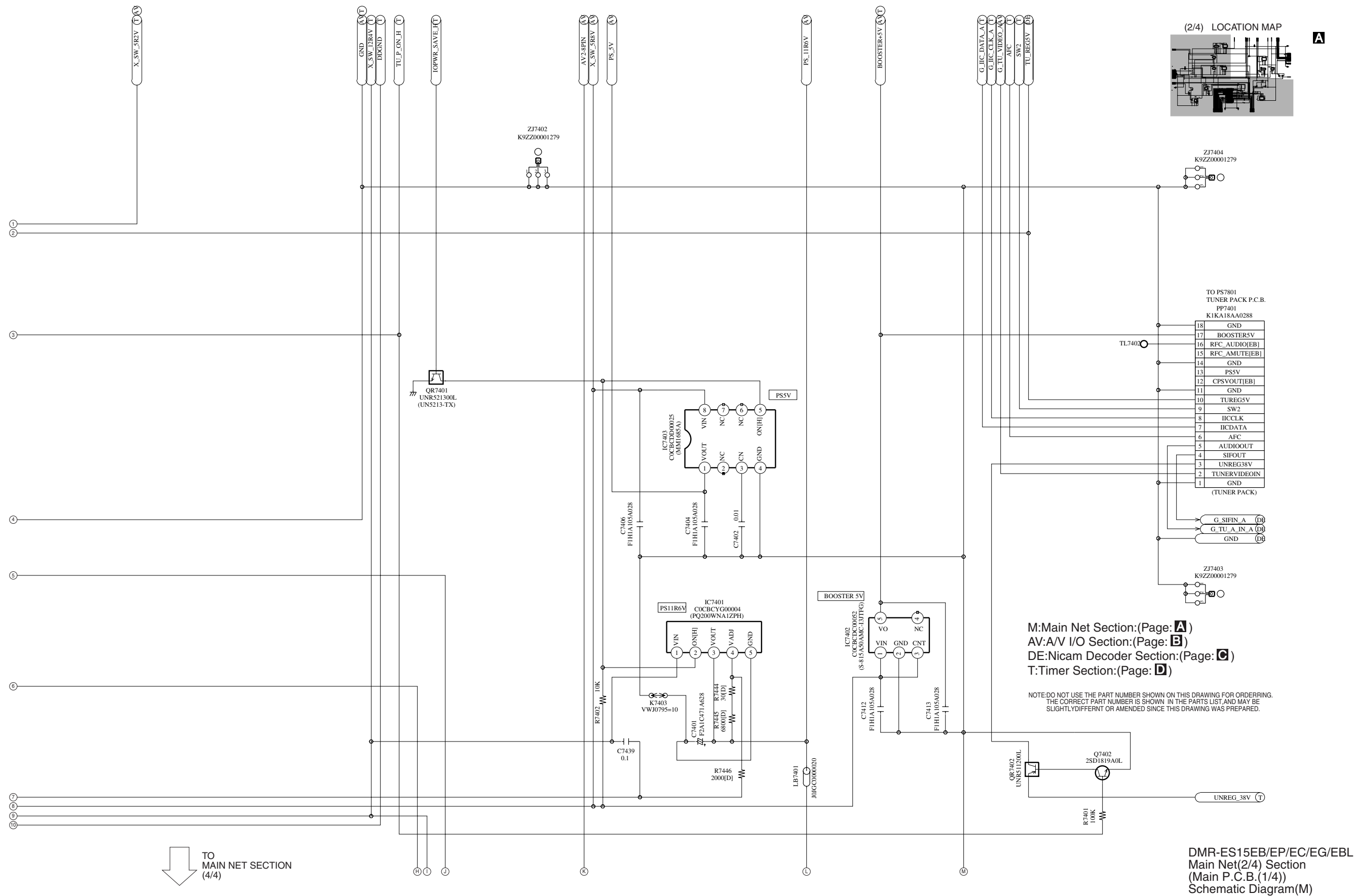
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
19	RHD30113-1K	SCREW	2	EPK,ECK,EGK
21	RKM0552-S	TOP CASE	1	EBS,EPS,EBLS,ECS,EGS ⚠
21	RKM0552-K	TOP CASE	1	EPK,ECK,EGK ⚠
23	RMC0625	TUNER END	2	
26	XYN3+J8FJ	SCREW	1	
27	RMQ1555	GASKET	2	
28	VEP71109A	POWER SUPPLY P.C.B.	1	(RTL)
29	VEP07A91C	TUNER P.C.B.	1	(RTL)EBS
29	VEP07A91D	TUNER P.C.B.	1	(RTL)EPK,EPS,EBLS
29	VEP07A91B	TUNER P.C.B.	1	(RTL)ECK,ECS
29	VEP07A91A	TUNER P.C.B.	1	(RTL)EGK,EGS
30	XSN3+4FJ	SCREW	1	
31	RMQ1551	GASKET A	1	
32	VMX1336	MINI CARD SPACER	1	
33	RQLS0375	CAUTION LABEL	1	⚠
A1	EUR7659Y50	REMOTE CONTROL ASS'Y	1	EBS,EBLS
A1	EUR7659Y40	REMOTE CONTROL ASS'Y	1	EPK,EPS,ECK,ECS,EGK,EGS
A1-1	UR76EC5903A	BATTERY COVER	1	
A2	K2CT3CA00004	AC CORD	1	EBS,EBLS ⚠
A2	RJA0043-1C	AC CORD	1	EPK,EPS,ECK,ECS,EGK,EGS ⚠
A3	K2KA6BA00003	AV CORD	1	
A4	K1TWACC00001	RF COAXIAL CABLE	2	
A5	K1TWACA00001	RF CABLE	1	EBS,EBLS
A7	RPQD0003	PAD (C)	1	
A8	RPQFD0001	ACCESSORY BOX	1	
A9	RPFD0005	POLYETHYLENE BAG(F.B)	1	ECK,ECS,EGK,EGS
A10	RQCA1474	SET UP GUIDE	1	EBS,EBLS
A11	RQCA1546	REFERENCE GUIDE	1	EBS,EBLS
A12	RQCC2704	DVD MEDIA SHEET	1	
A13	RQT8318-D	OPERATING INSTRUCTIONS	1	(IA)ECK,ECS,EGK,EGS ⚠
A13	RQT8319-E	OPERATING INSTRUCTIONS	1	(IB)ECK,ECS ⚠
A13	RQT8320-B	OPERATING INSTRUCTIONS	1	(IC)EBS,EBLS ⚠
A13	RQT8321-R	OPERATING INSTRUCTIONS	1	(ID)EPK,EPS ⚠
A13	RQT8389-H	OPERATING INSTRUCTIONS	1	(IE)ECK,ECS ⚠
A13	RQT8390-1J	OPERATING INSTRUCTIONS	1	(IF)ECK,ECS,EGK,EGS ⚠
PC1	RPG7913	PACKING CASE	1	EBS
PC1	RPG7914	PACKING CASE	1	EBLS
PC1	RPG7915	PACKING CASE	1	EPS
PC1	RPG8016	PACKING CASE	1	EPK
PC1	RPG7912	PACKING CASE	1	ECS
PC1	RPG7982	PACKING CASE	1	ECK
PC1	RPG7911	PACKING CASE	1	EGS
PC1	RPG7981	PACKING CASE	1	EGK
PC2	RPN1863	CUSHION	1	
PC3	RPFD0004	MIRAMAT BAG	1	

17. Schematic Diagram for printing with A4

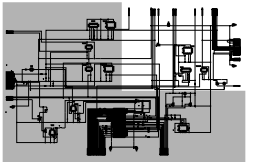




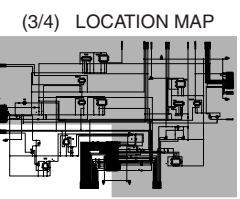
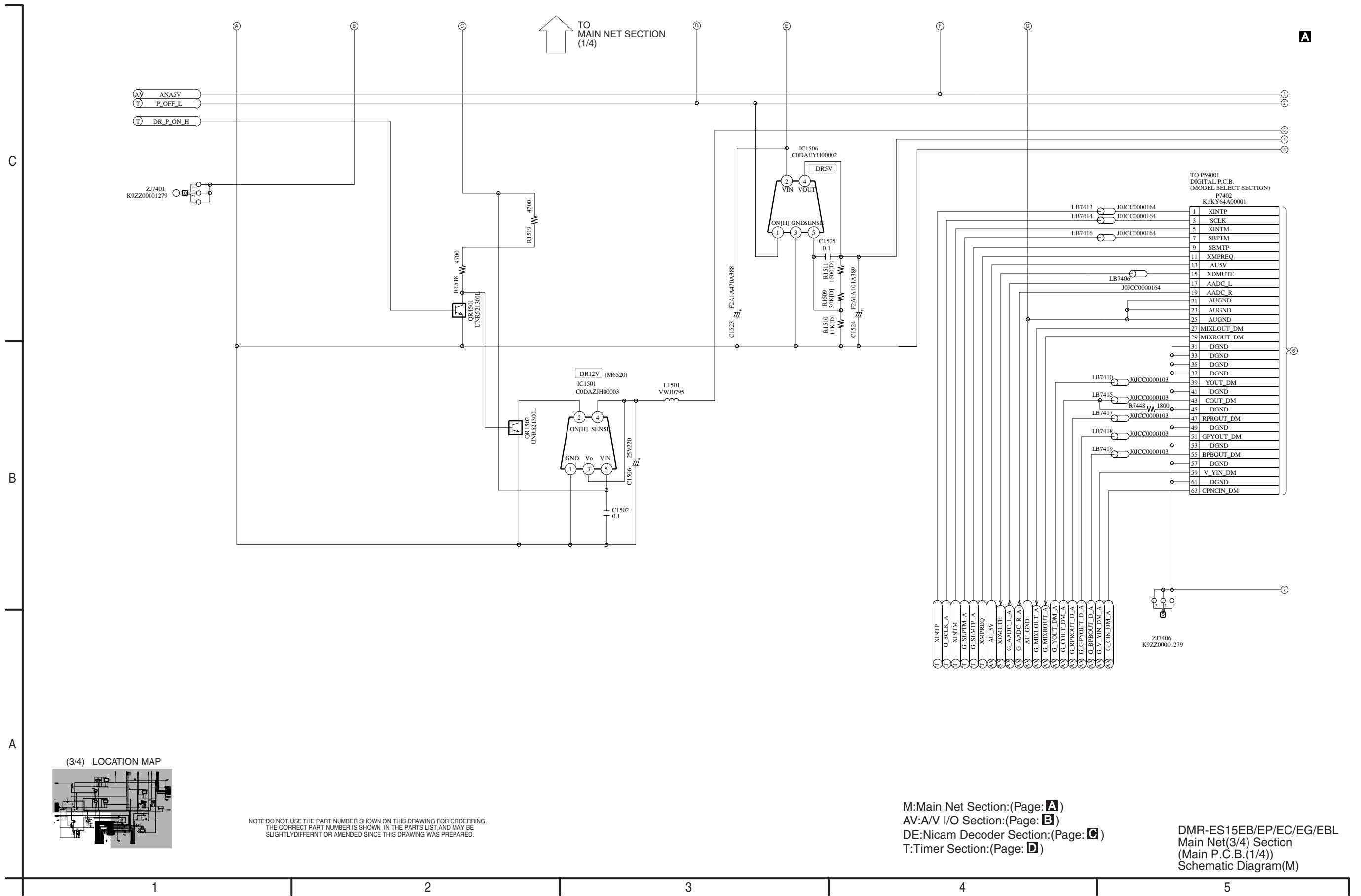
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(2/4) LOCATION MAP



A



NOTE:DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING.
THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST,AND MAY BE
SLIGHTLYDIFFERNT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

M:Main Net Section:(Page: **A**)
AV:AV I/O Section:(Page: **B**)
DE:Nicam Decoder Section:(Page: **C**)
T:Timer Section:(Page: **D**)

DMR-ES15EB/EP/EC/EG/EBL
Main Net(3/4) Section
(Main P.C.B.(1/4))
Schematic Diagram(M)



DMR-ES15EB/EP/EC/EG/EBL
Main Net(4/4) Section
(Main P.C.B.(1/4))
Schematic Diagram(M)

C

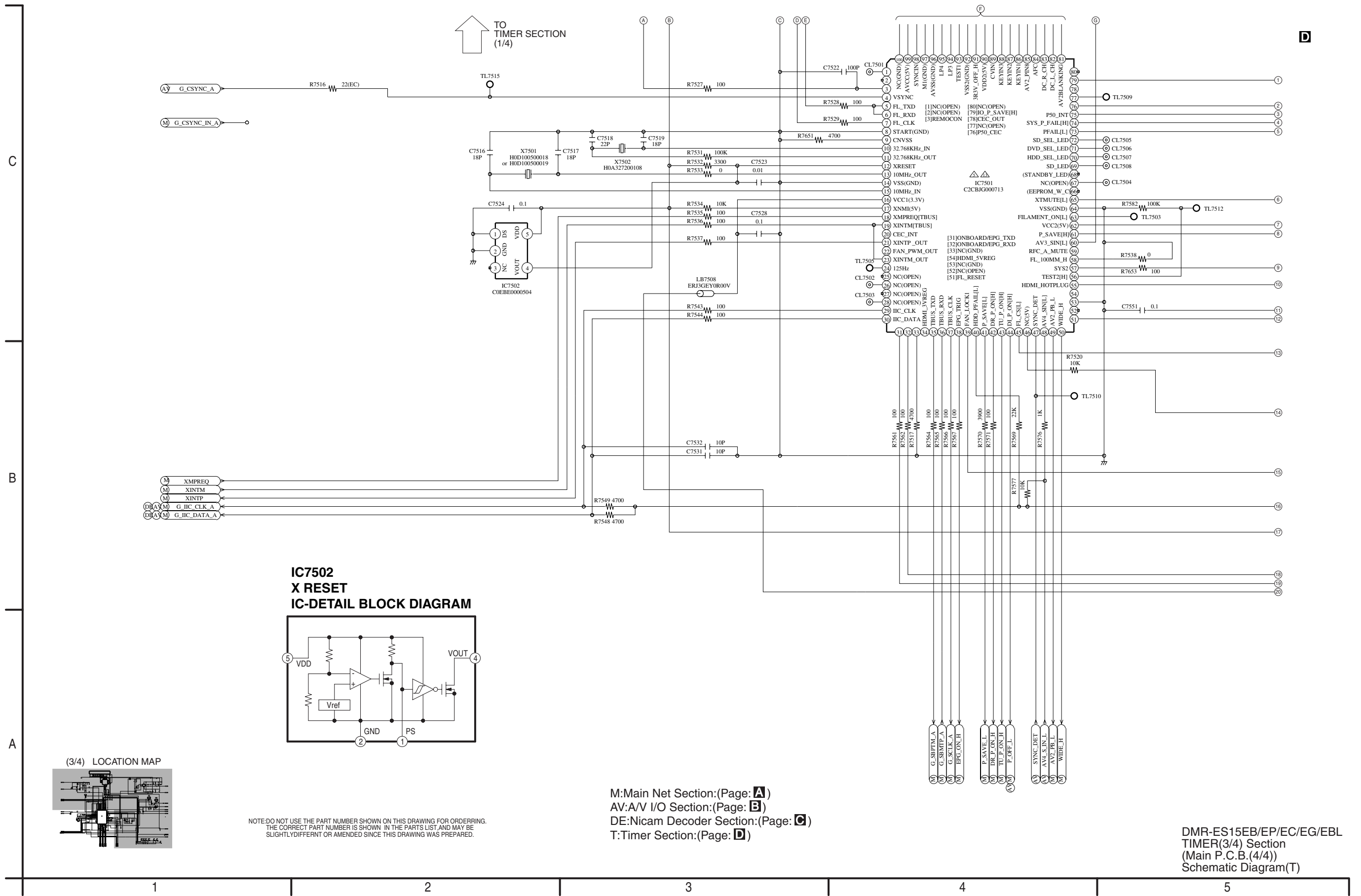
B

A

↓
TO
TIMER SECTION
(3/4)



DMR-ES15EB/EP/EC/EG/EBL
TIMER(1/4) Section
(Main P.C.B.(4/4))
Schematic Diagram(T)



C

B

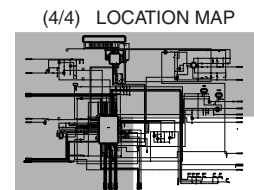
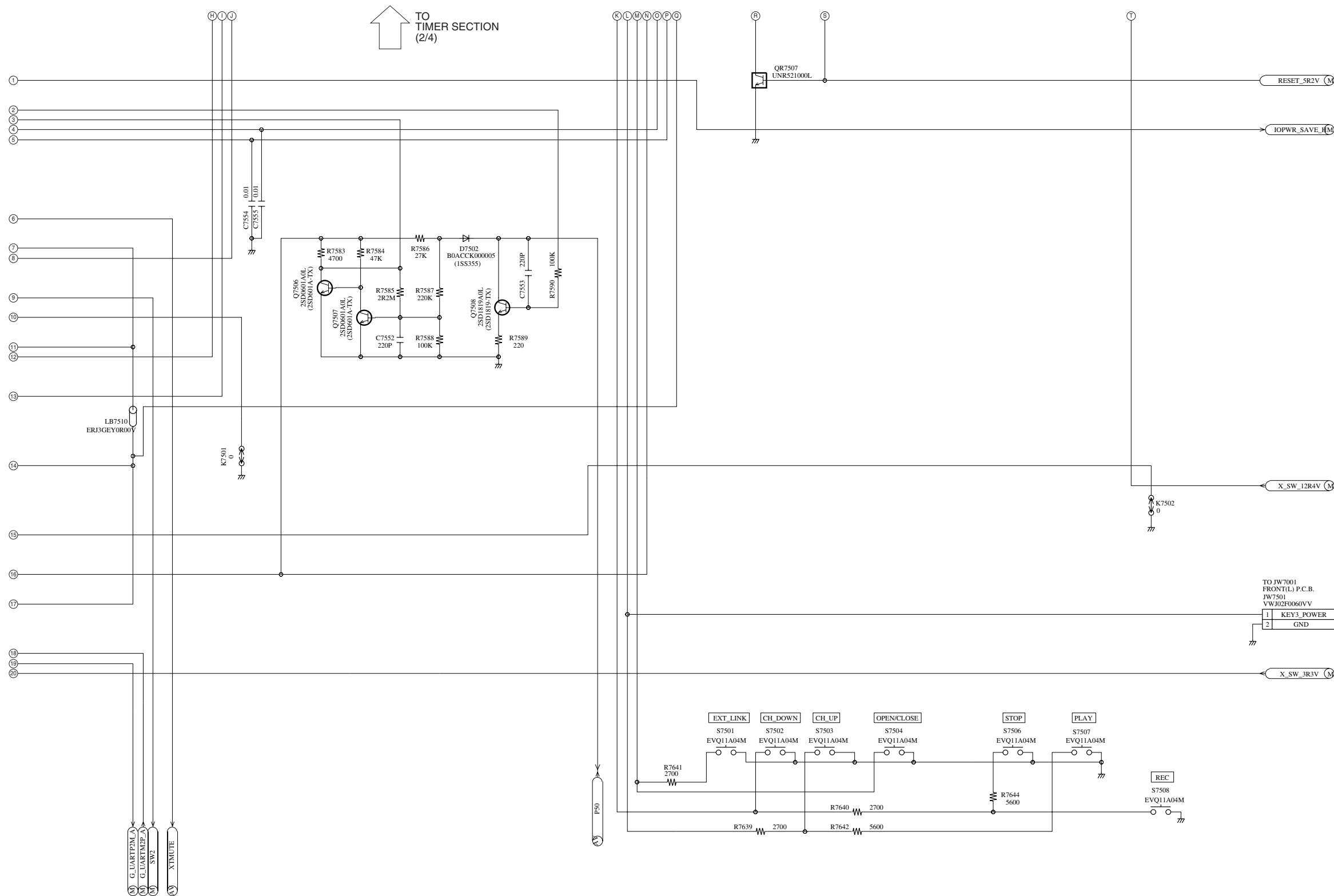
A

D

NOTE:DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING.
THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST AND MAY BE
SLIGHTLYDIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

M:Main Net Section:(Page: **A**)
AV:AV I/O Section:(Page: **B**)
DE:Nicam Decoder Section:(Page: **C**)
T:Timer Section:(Page: **D**)

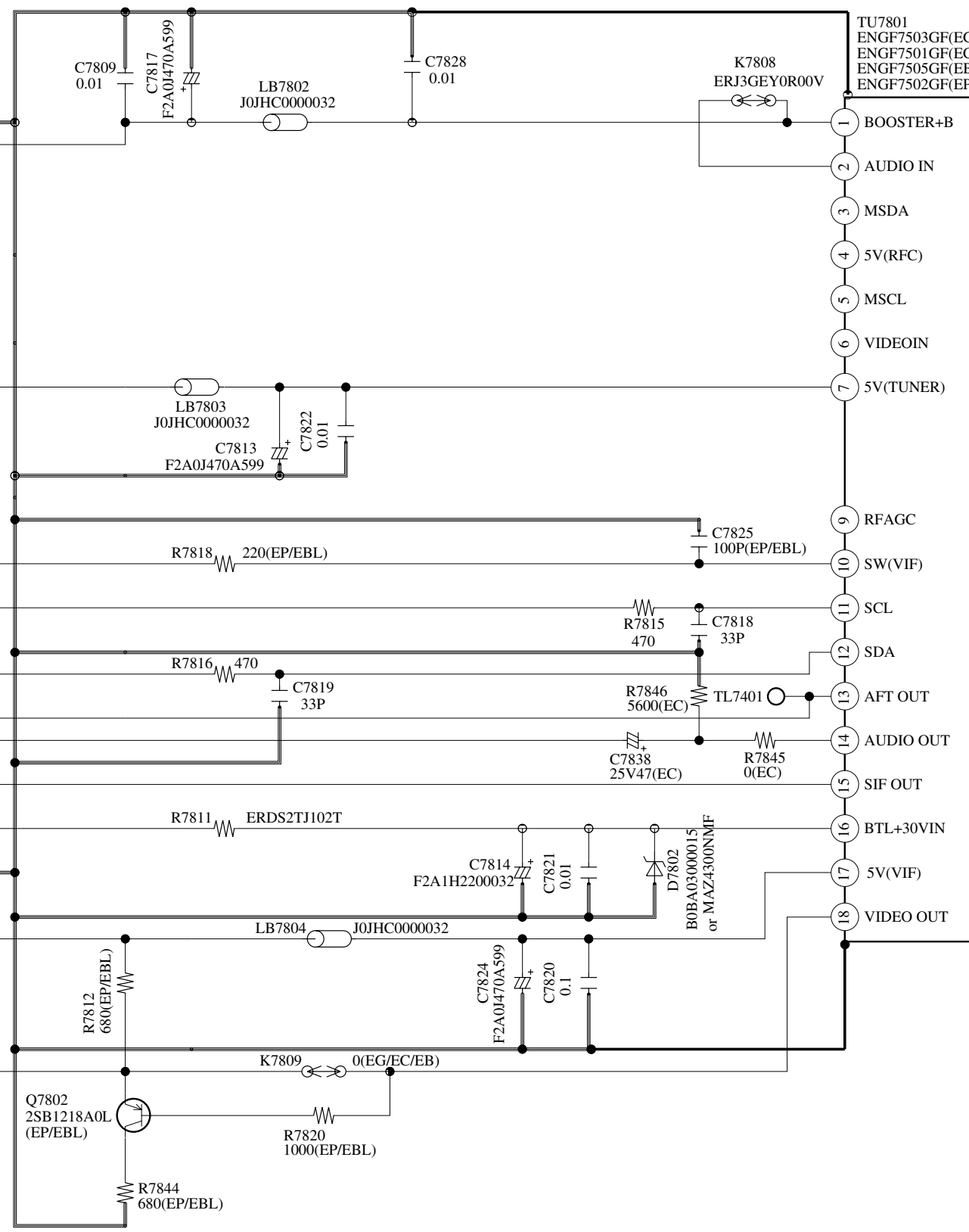
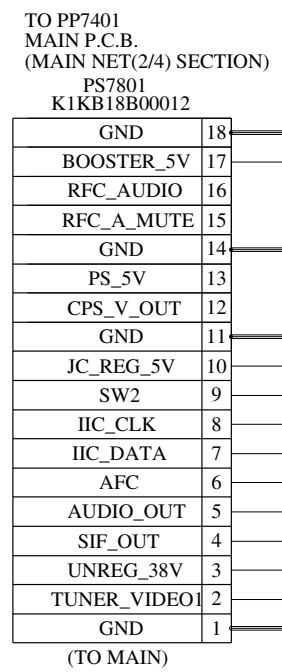
DMR-ES15EB/EP/EC/EG/EBL
TIMER(3/4) Section
(Main P.C.B.(4/4))
Schematic Diagram(T)



M:Main Net Section:(Page: **A**)
 AV:AV I/O Section:(Page: **B**)
 DE:Nicam Decoder Section:(Page: **C**)
 T:Timer Section:(Page: **D**)

NOTE:DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING.
 THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST AND MAY BE
 SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

DMR-ES15EB/EP/EC/EG/EBL
 TIMER(4/4) Section
 (Main P.C.B.(4/4))
 Schematic Diagram(T)



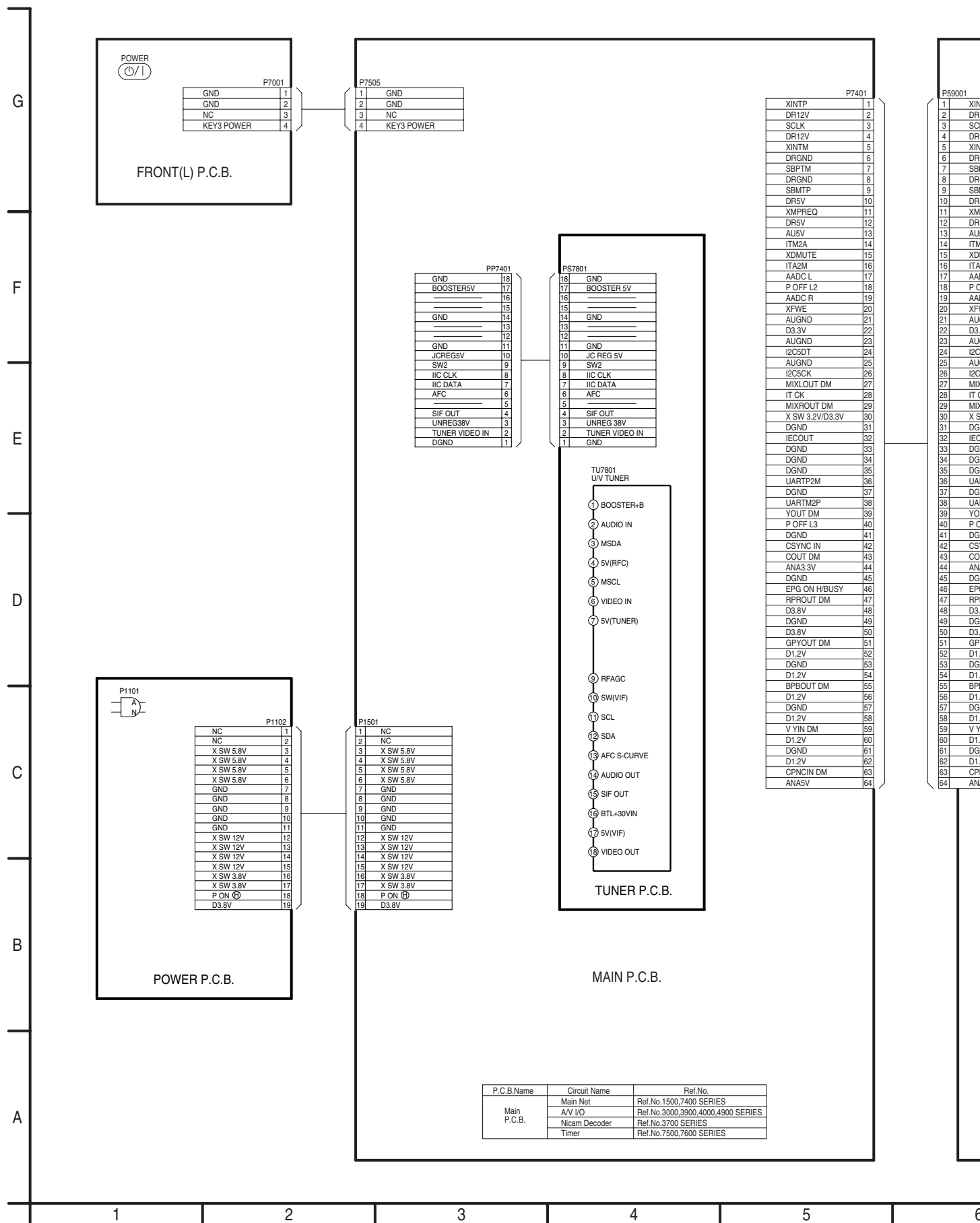
- TU7801
ENGF7503GF(EG)
ENGF7501GF(EC)
ENGF7505GF(EB)
ENGF7502GF(EP/EBL)
- 1 BOOSTER+B
 - 2 AUDIO IN
 - 3 MSDA
 - 4 5V(RFC)
 - 5 MSCL
 - 6 VIDEOIN
 - 7 5V(TUNER)
 - 9 RFAGC
 - 10 SW(VIF)
 - 11 SCL
 - 12 SDA
 - 13 AFT OUT
 - 14 AUDIO OUT
 - 15 SIF OUT
 - 16 BTL+30VIN
 - 17 5V(VIF)
 - 18 VIDEO OUT

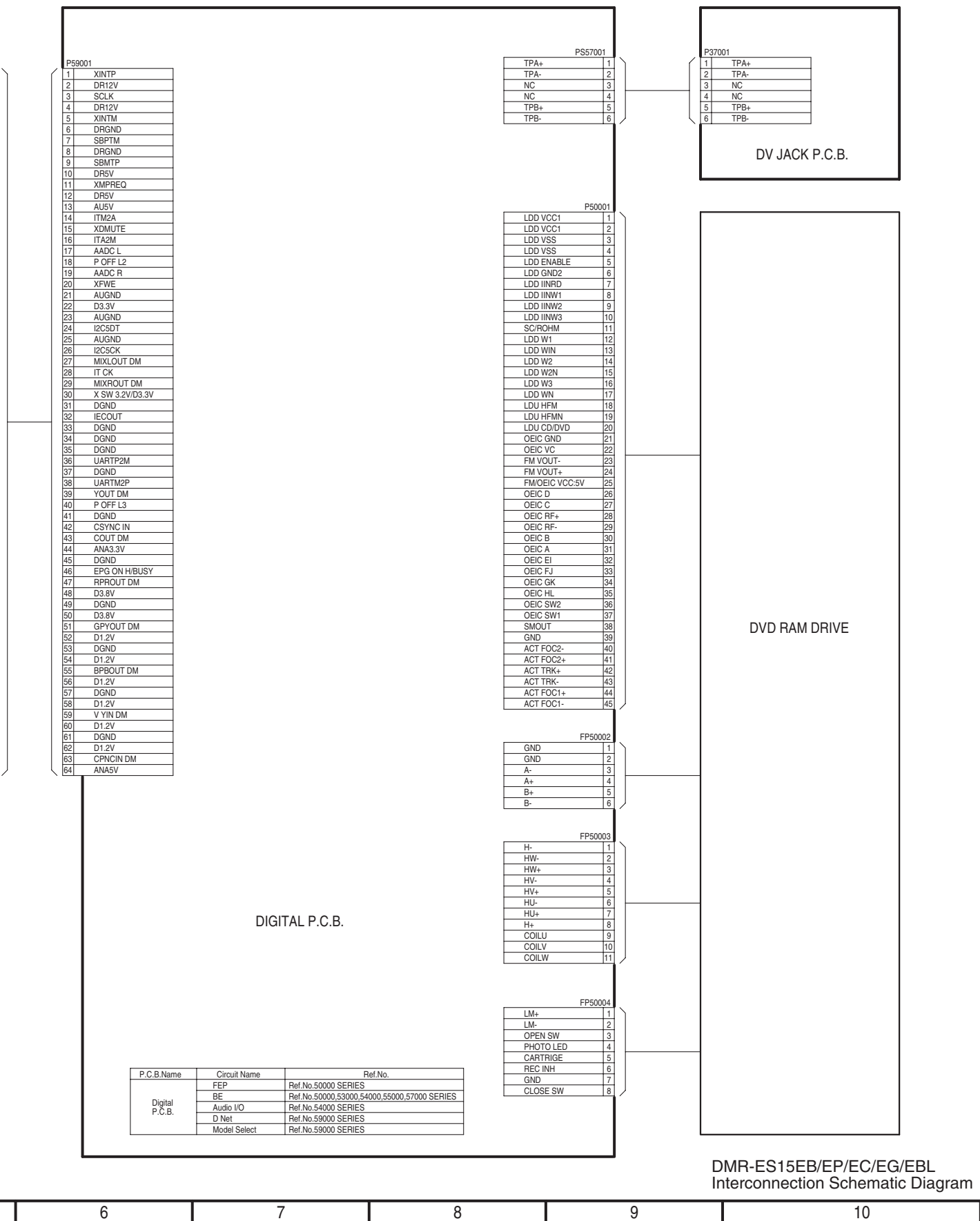
NOTE:DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING.
THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST AND MAY BE
SLIGHTLYDIFFERNT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

DMR-ES15EB/EP/EC/EG/EBL
Tuner Pack Schematic Diagram

13 Schematic Diagram

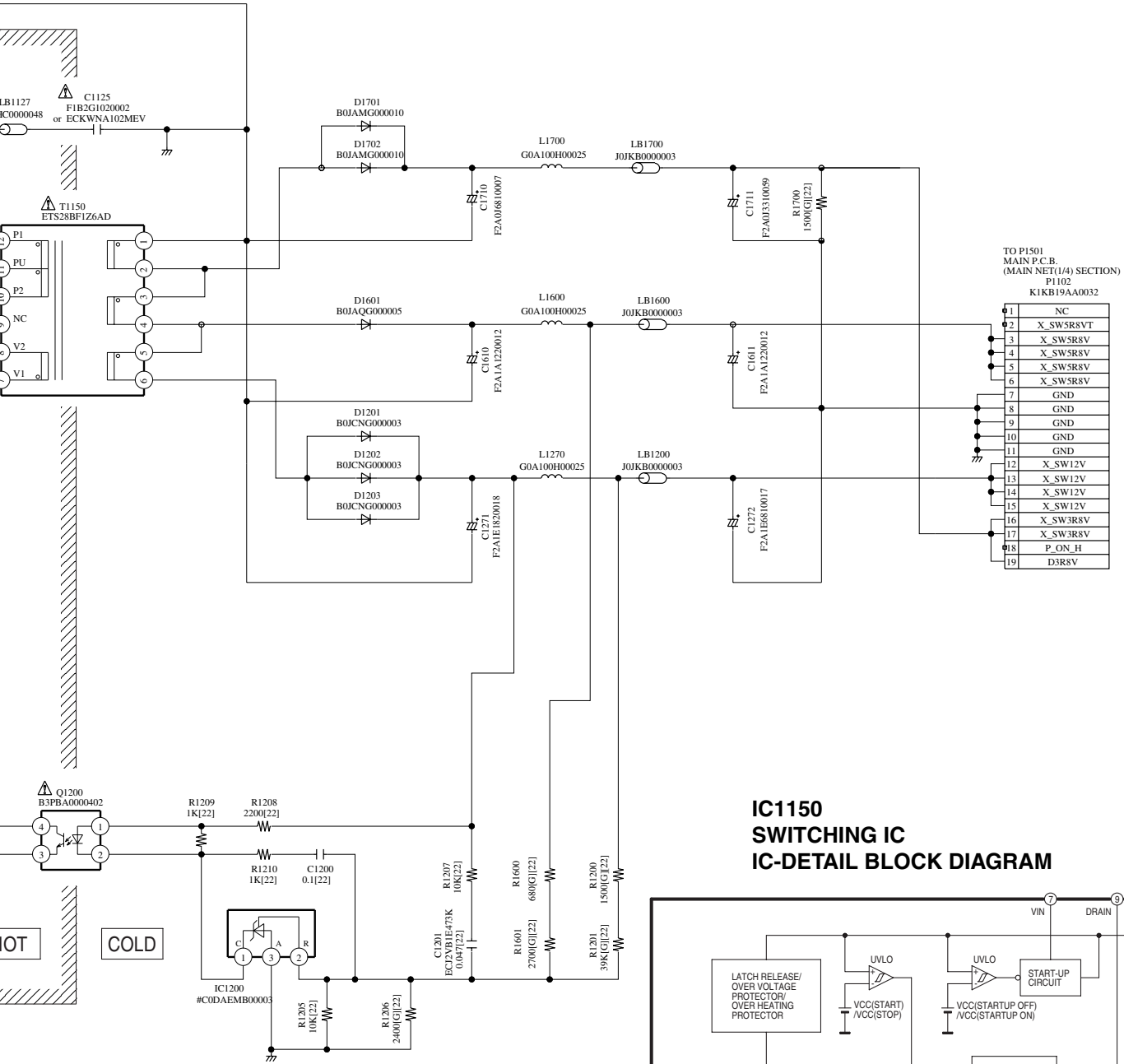
13.1. Interconnection Schematic Diagram



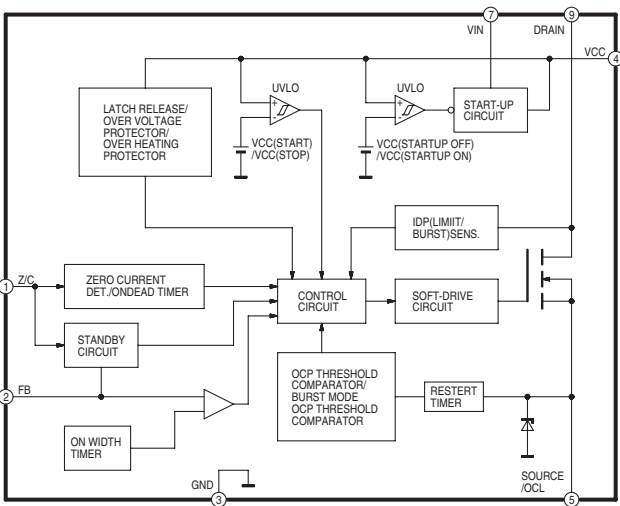




IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK HAVE THE SPECIAL CHARACTERISTICS FOR
WHEN REPLACING ANY OF THESE COMPONENTS, ONLY THE SAME TYPE.



**IC1150
SWITCHING IC
IC-DETAIL BLOCK DIAGRAM**

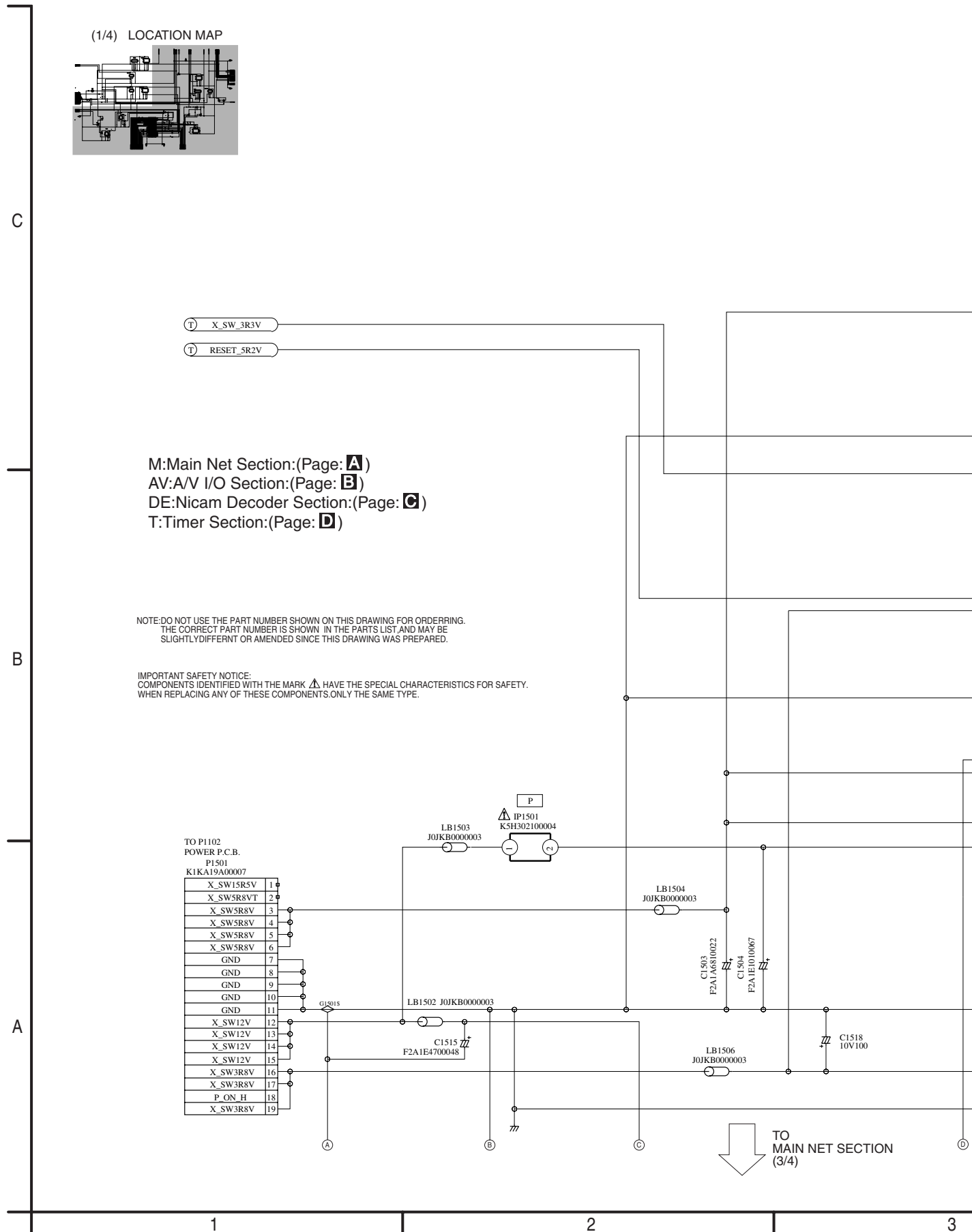


CHARACTERISTICS FOR SAFETY.
PE.

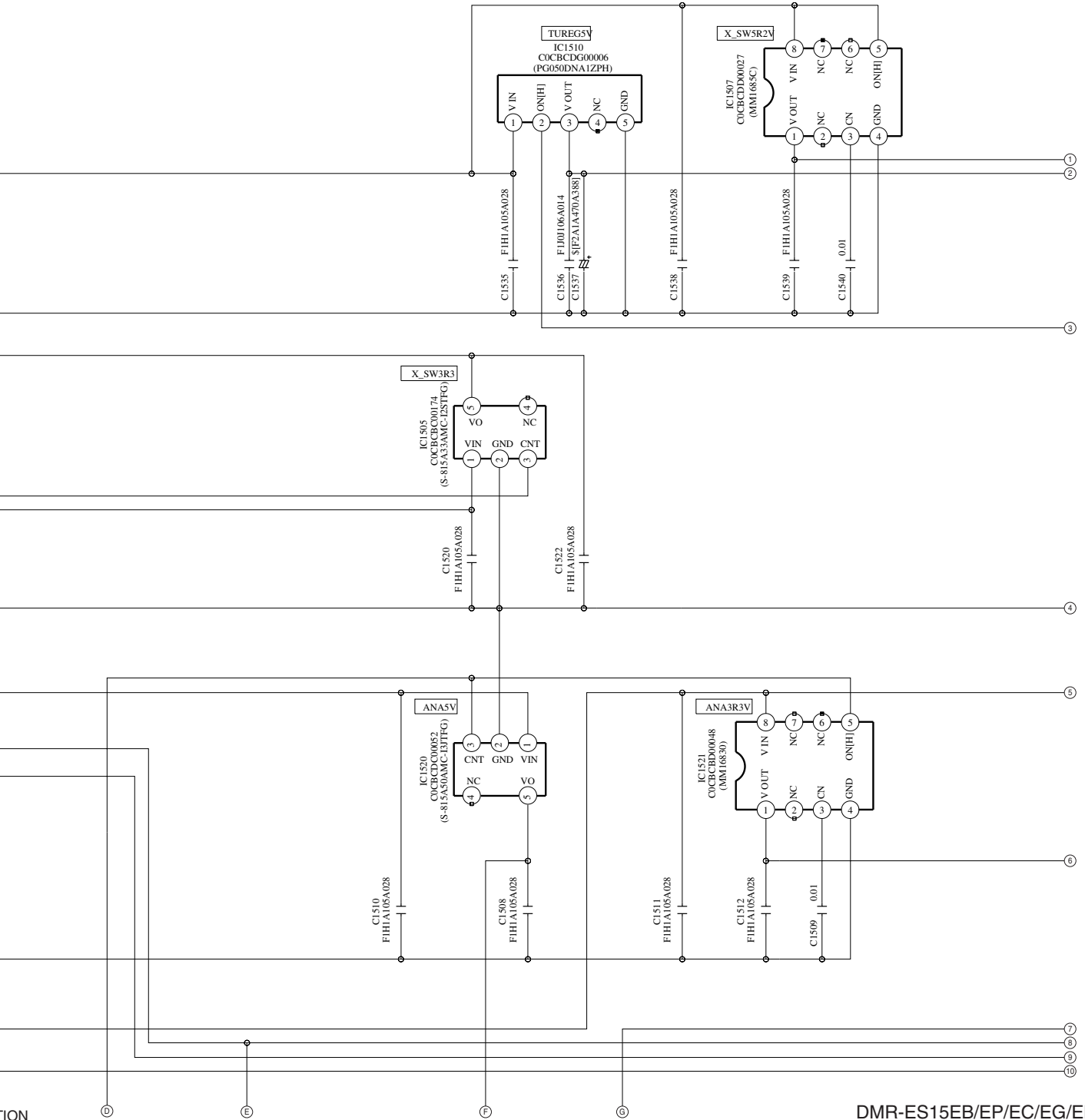
**DMR-ES15EB/EP/EC/EG/EBL
Power Supply Schematic Diagram**

6 | 7 | 8 | 9 | 10

13.3. Main Net (1/4) Section (Main P.C.B. (1/4)) Schematic Diagram (M)

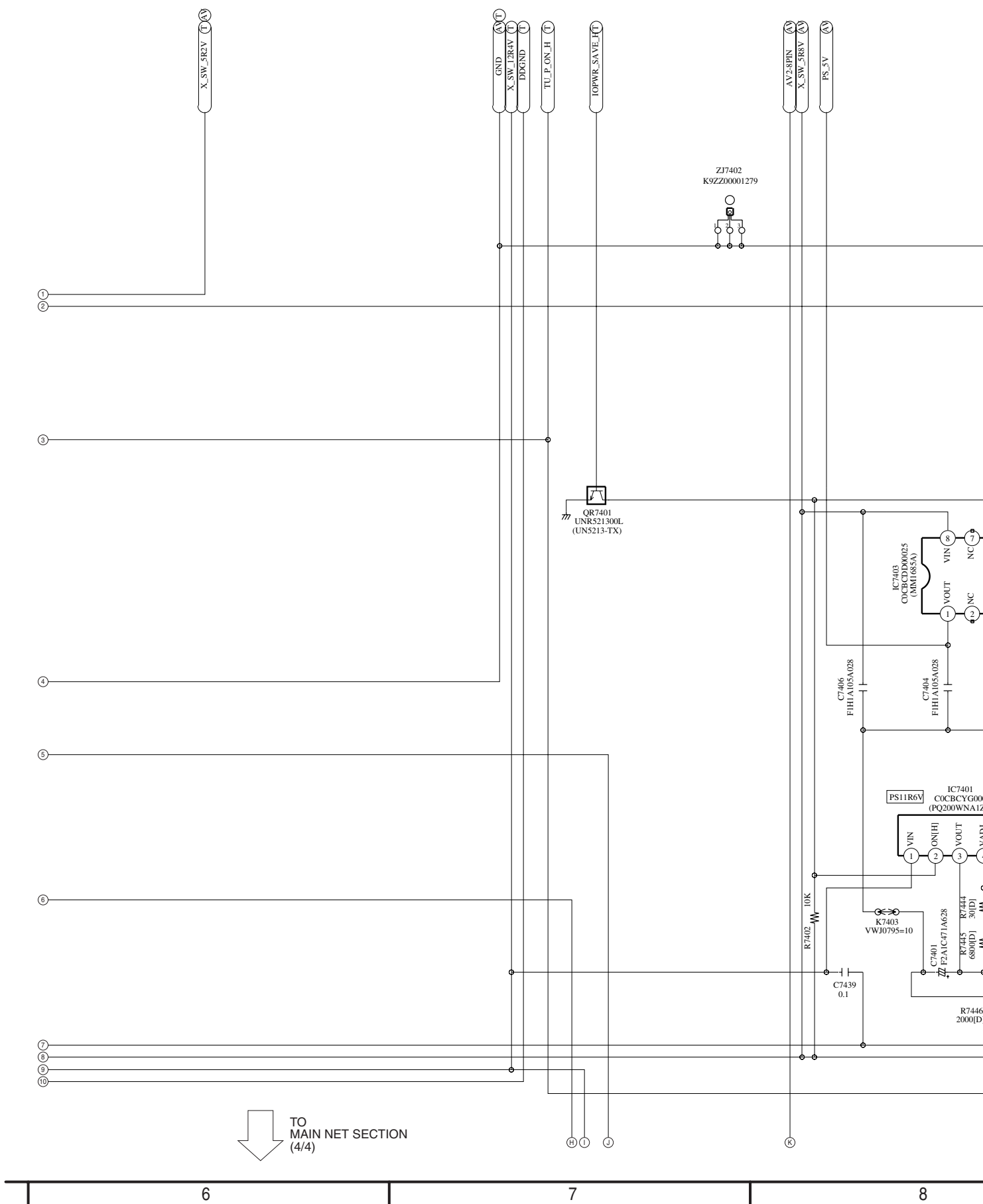


A



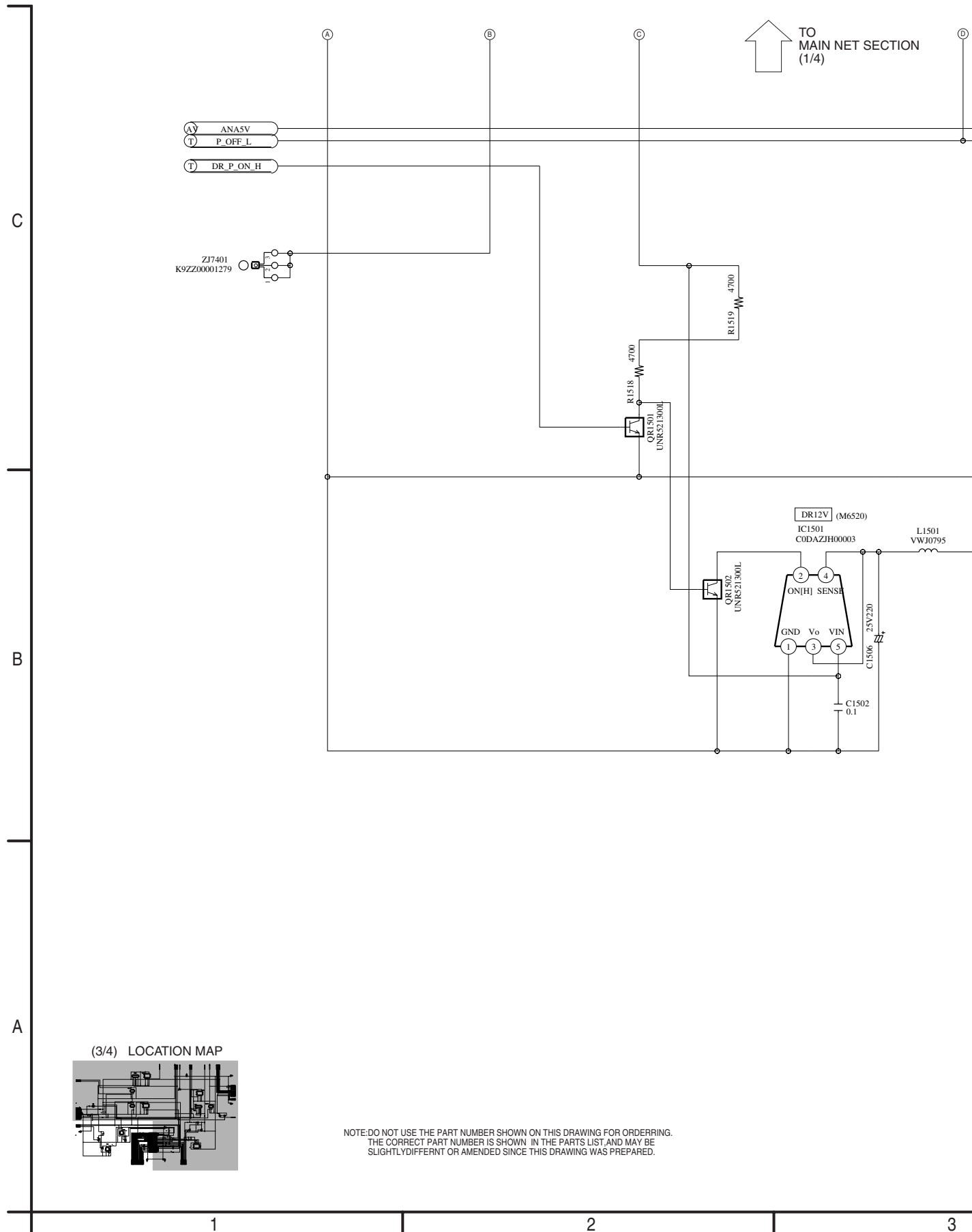
DMR-ES15EB/EP/EC/EG/EBL
Main Net(1/4) Section
(Main P.C.B.(1/4))
Schematic Diagram(M)

13.4. Main Net (2/4) Section (Main P.C.B. (1/4)) Schematic Diagram (M)

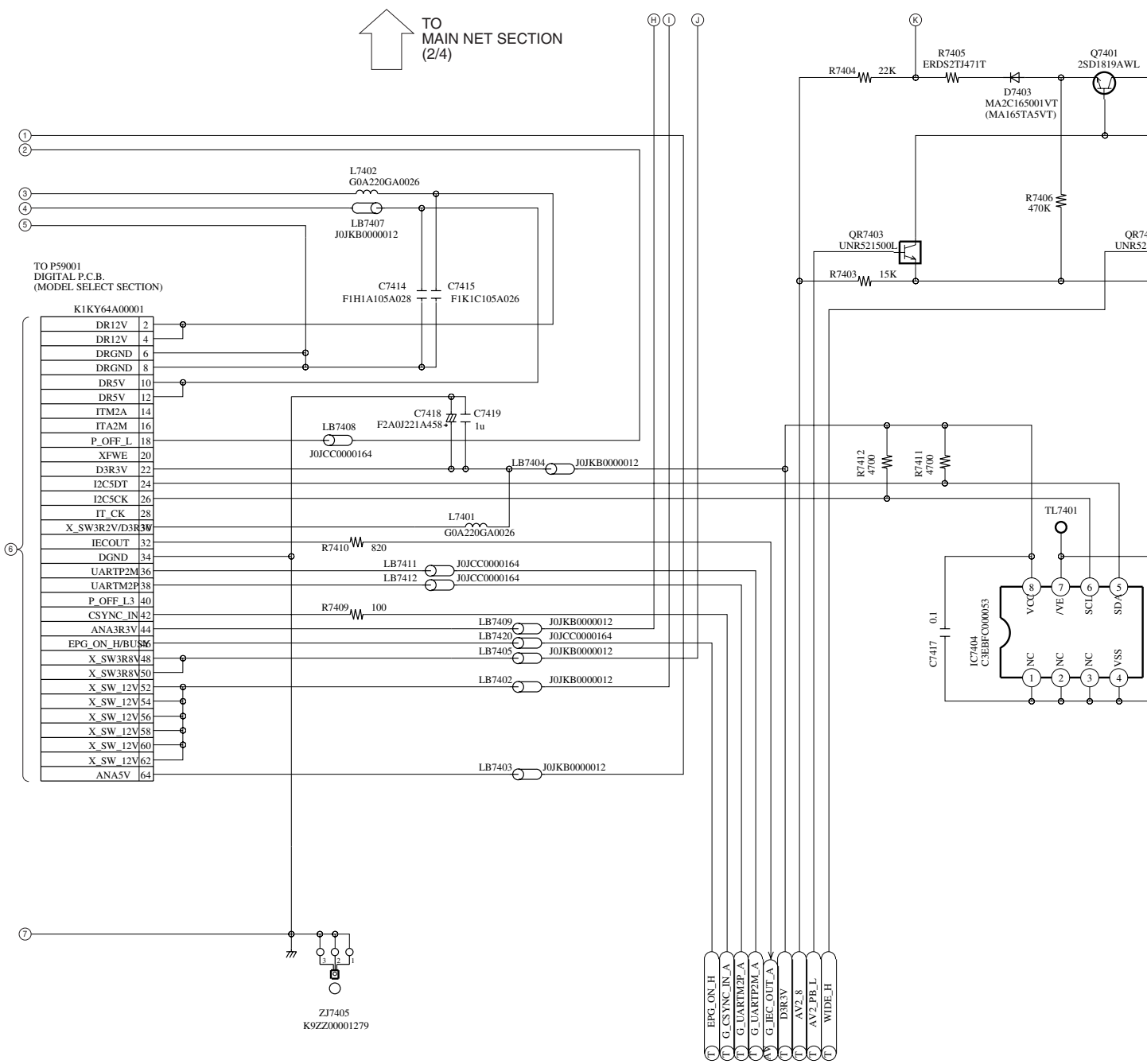




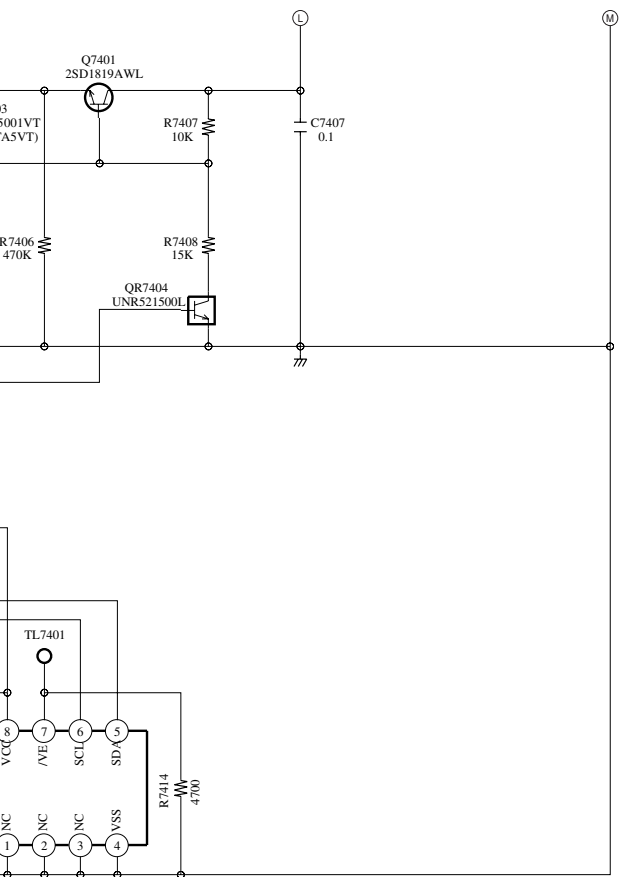
13.5. Main Net (3/4) Section (Main P.C.B. (1/4)) Schematic Diagram (M)



13.6. Main Net (4/4) Section (Main P.C.B. (1/4)) Schematic Diagram (M)

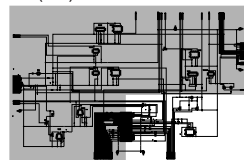


M:Main Net Section:(P
AV:A/V I/O Section:(Pa
DE:Nicam Decoder Se
T:Timer Section:(Page



A

(4/4) LOCATION MAP

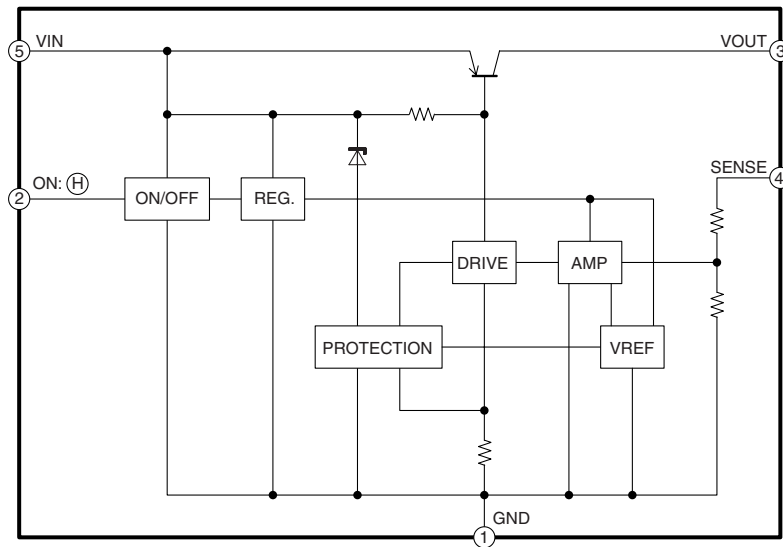


Net Section:(Page: **A**)
 I/O Section:(Page: **B**)
 Arm Decoder Section:(Page: **C**)
 Section:(Page: **D**)

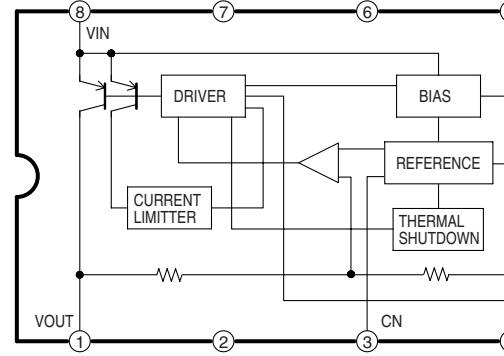
NOTE:DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING.
 THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST,AND MAY BE
 SLIGHTLYDIFFERNT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

DMR-ES15EB/EP/EC/EG/EBL
 Main Net(4/4) Section
 (Main P.C.B.(1/4))
 Schematic Diagram(M)

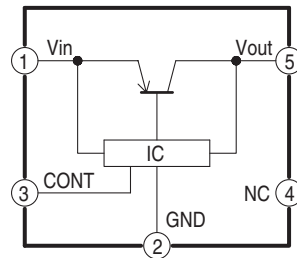
IC1501
DR +12V SWITCHING REGULATOR
IC-DETAIL BLOCK DIAGRAM



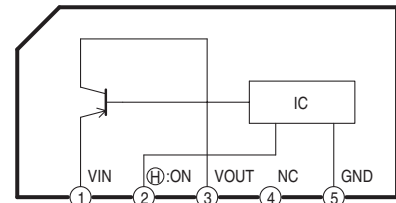
IC1507
XSW +5.2V SWITCHING REGULATOR
IC-DETAIL BLOCK DIAGRAM



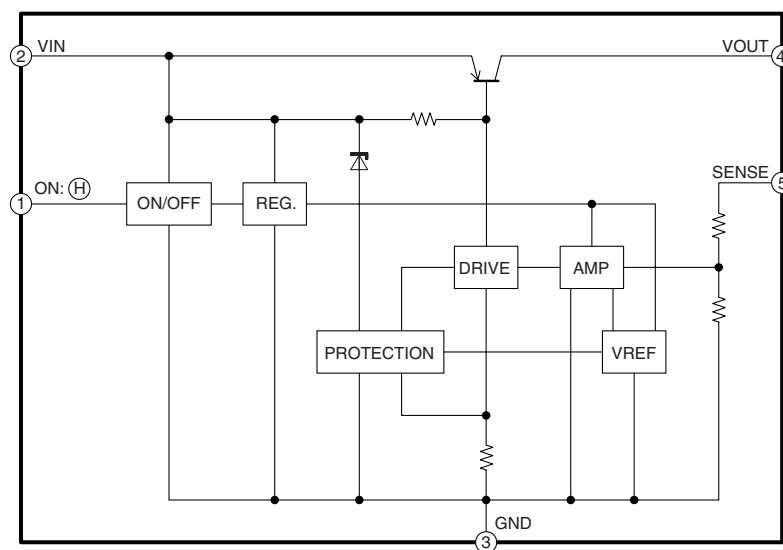
IC1505
XSW +3.3V SWITCHING REGULATOR
IC-DETAIL BLOCK DIAGRAM



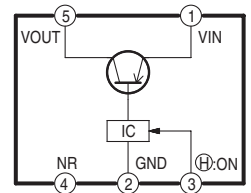
IC1510
TU +5V SWITCHING REGULATOR
IC-DETAIL BLOCK DIAGRAM



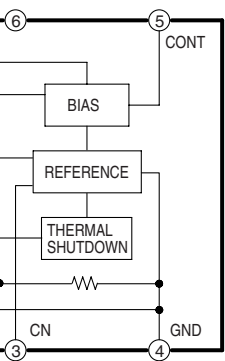
IC1506
DR +5V SWITCHING REGULATOR
IC-DETAIL BLOCK DIAGRAM



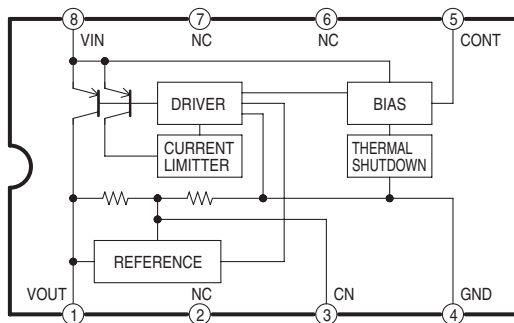
IC1520
ANA +5V SWITCHING REGULATOR
IC-DETAIL BLOCK DIAGRAM



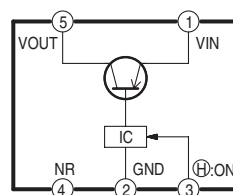
REGULATOR GRAM



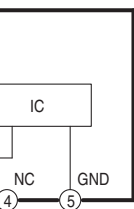
IC1521 ANA +3.3V SWITCHING REGULATOR IC-DETAIL BLOCK DIAGRAM



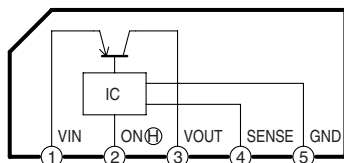
IC7402 BOOSTER +5V SWITCHING REGULATOR IC-DETAIL BLOCK DIAGRAM



REGULATOR GRAM



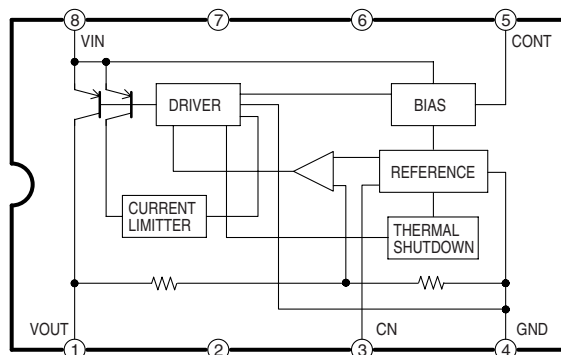
IC7401 PS +11.6V SWITCHING REGULATOR IC-DETAIL BLOCK DIAGRAM



REGULATOR GRAM



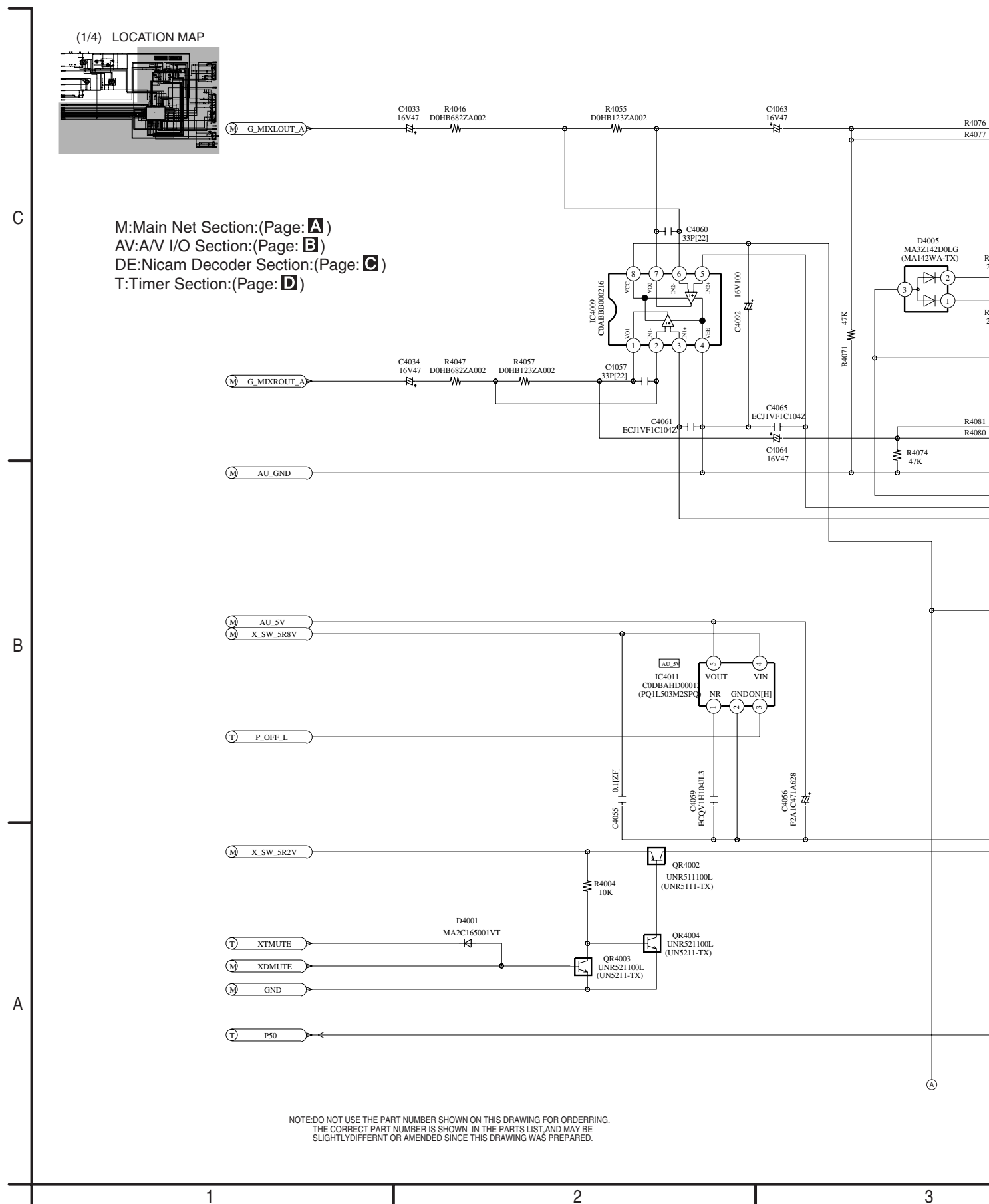
IC7403 PS +5V SWITCHING REGULATOR IC-DETAIL BLOCK DIAGRAM



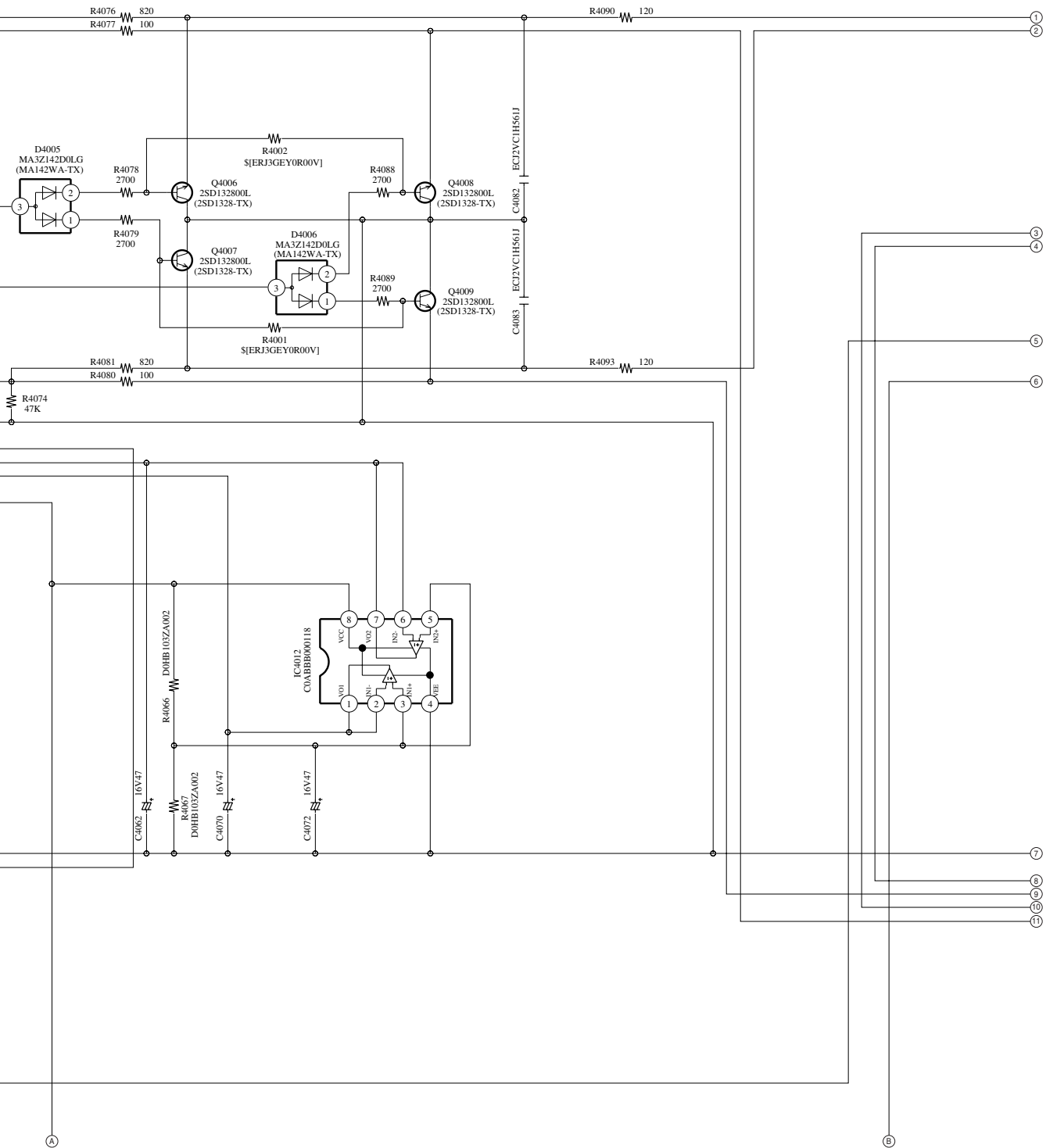
IC1501 Detail Block Diagram
IC1505 Detail Block Diagram
IC1506 Detail Block Diagram
IC1507 Detail Block Diagram
IC1510 Detail Block Diagram
IC1520 Detail Block Diagram
IC1521 Detail Block Diagram
IC7401 Detail Block Diagram
IC7402 Detail Block Diagram
IC7403 Detail Block Diagram

DMR-ES15EB/EP/EC/EG/EBL IC-Detail Block Diagram

13.7. A/V I/O (1/4) Section (Main P.C.B. (2/4)) Schematic Diagram (AV)



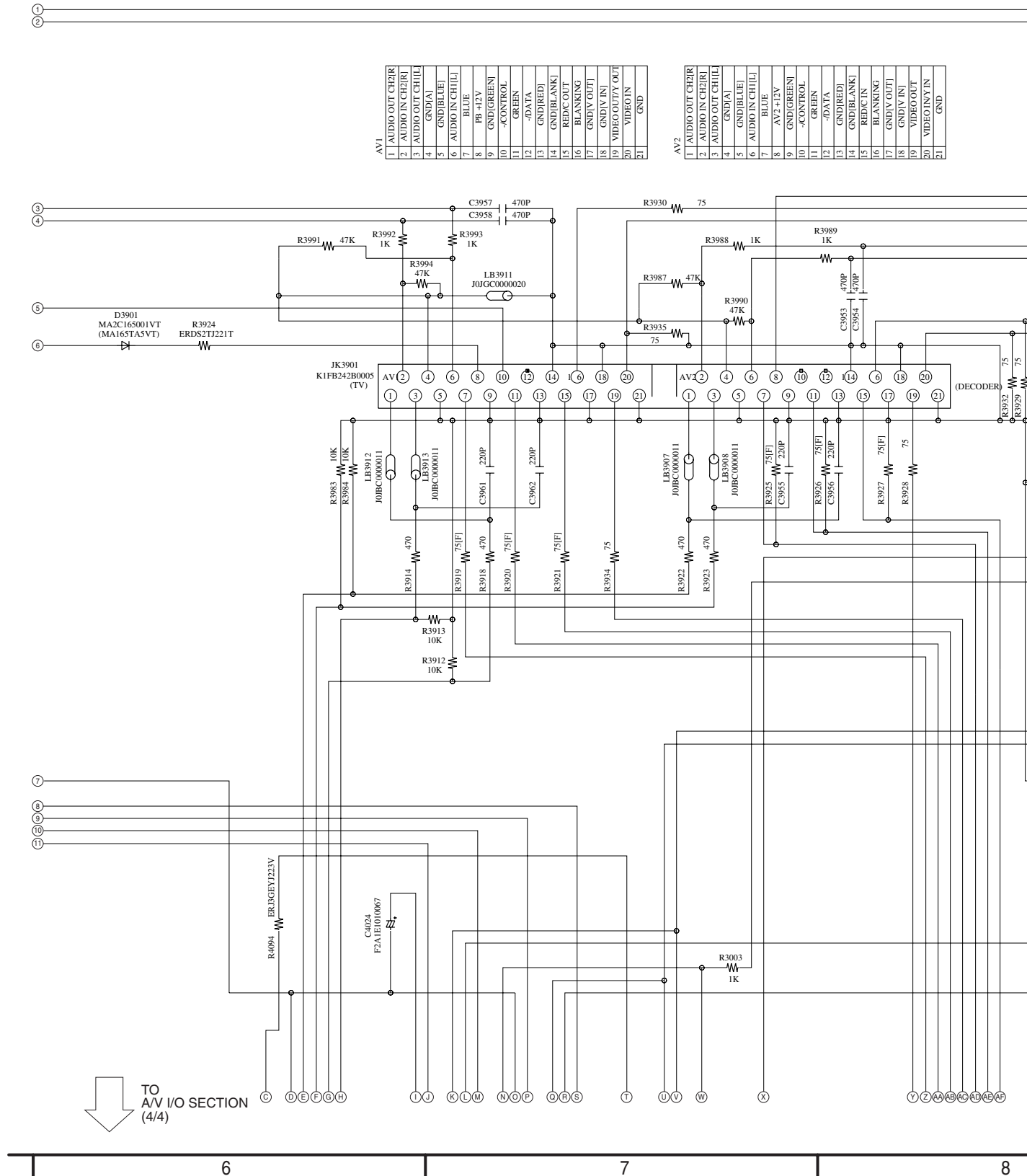
B



TO
A/V I/O SECTION
(3/4)

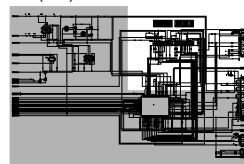
DMR-ES15EB/EP/EC/EG/EBL
A/V I/O(1/4) Section
(Main P.C.B.(2/4))
Schematic Diagram(AV)

13.8. A/V I/O (2/4) Section (Main P.C.B. (2/4)) Schematic Diagram (AV)

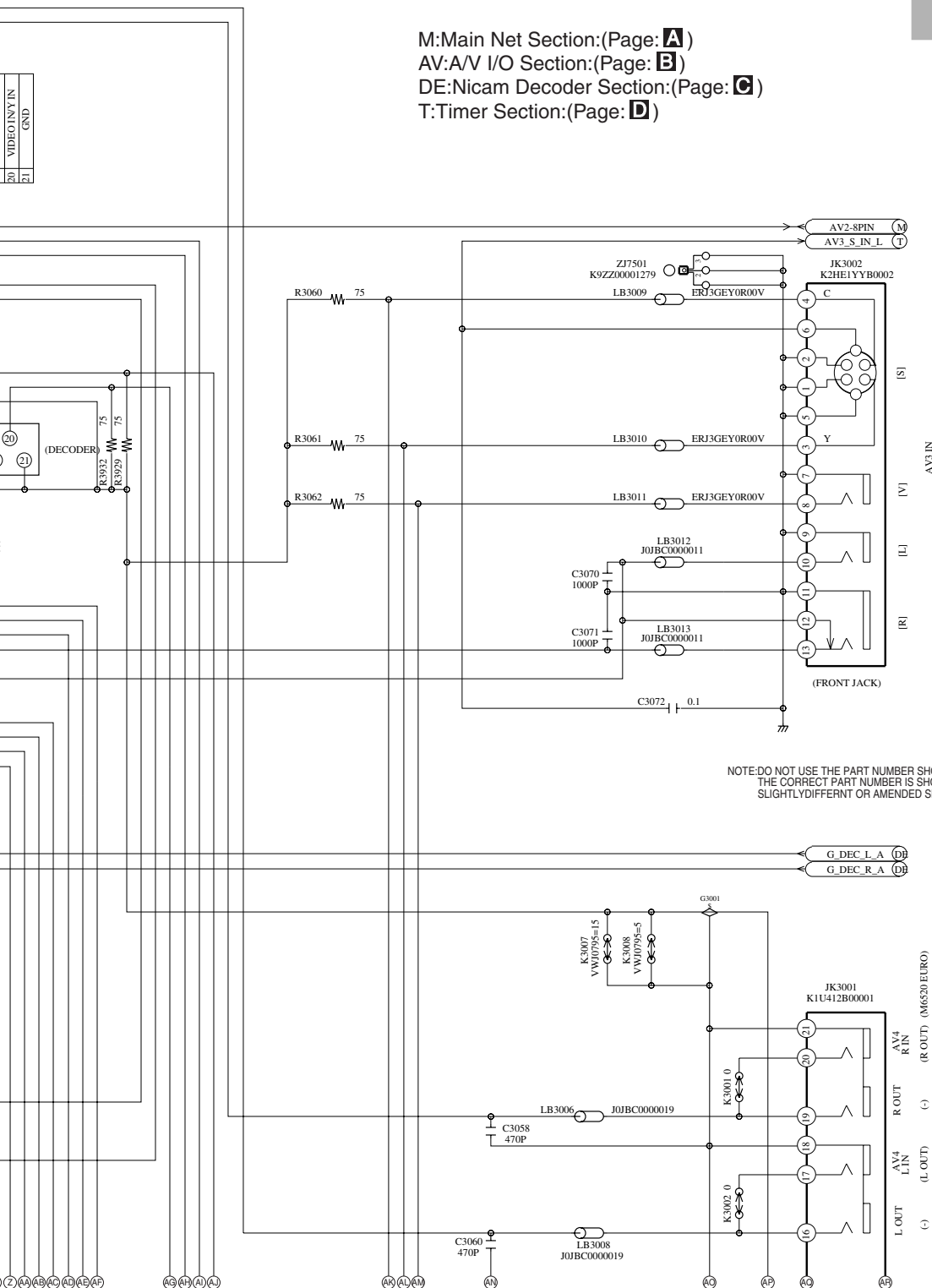


M:Main Net Section:(Page: **A**)
 AV:AV I/O Section:(Page: **B**)
 DE:Nicam Decoder Section:(Page: **C**)
 T:Timer Section:(Page: **D**)

(2/4) LOCATION MAP



B



NOTE:DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING.
 THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST,AND MAY BE
 SLIGHTLYDIFFERNT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

DMR-ES15EB/EP/EC/EG/EBL
 A/V I/O(2/4) Section
 (Main P.C.B.(2/4))
 Schematic Diagram(AV)

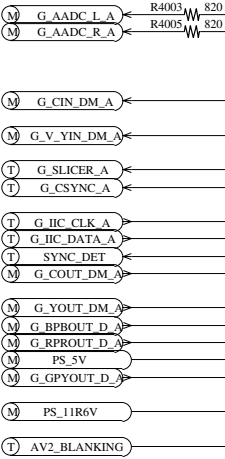
13.9. A/V I/O (3/4) Section (Main P.C.B. (2/4)) Schematic Diagram (AV)

TO
A/V I/O SECTION
(1/4)

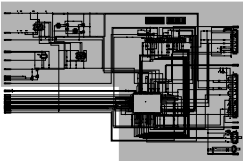
C

B

A

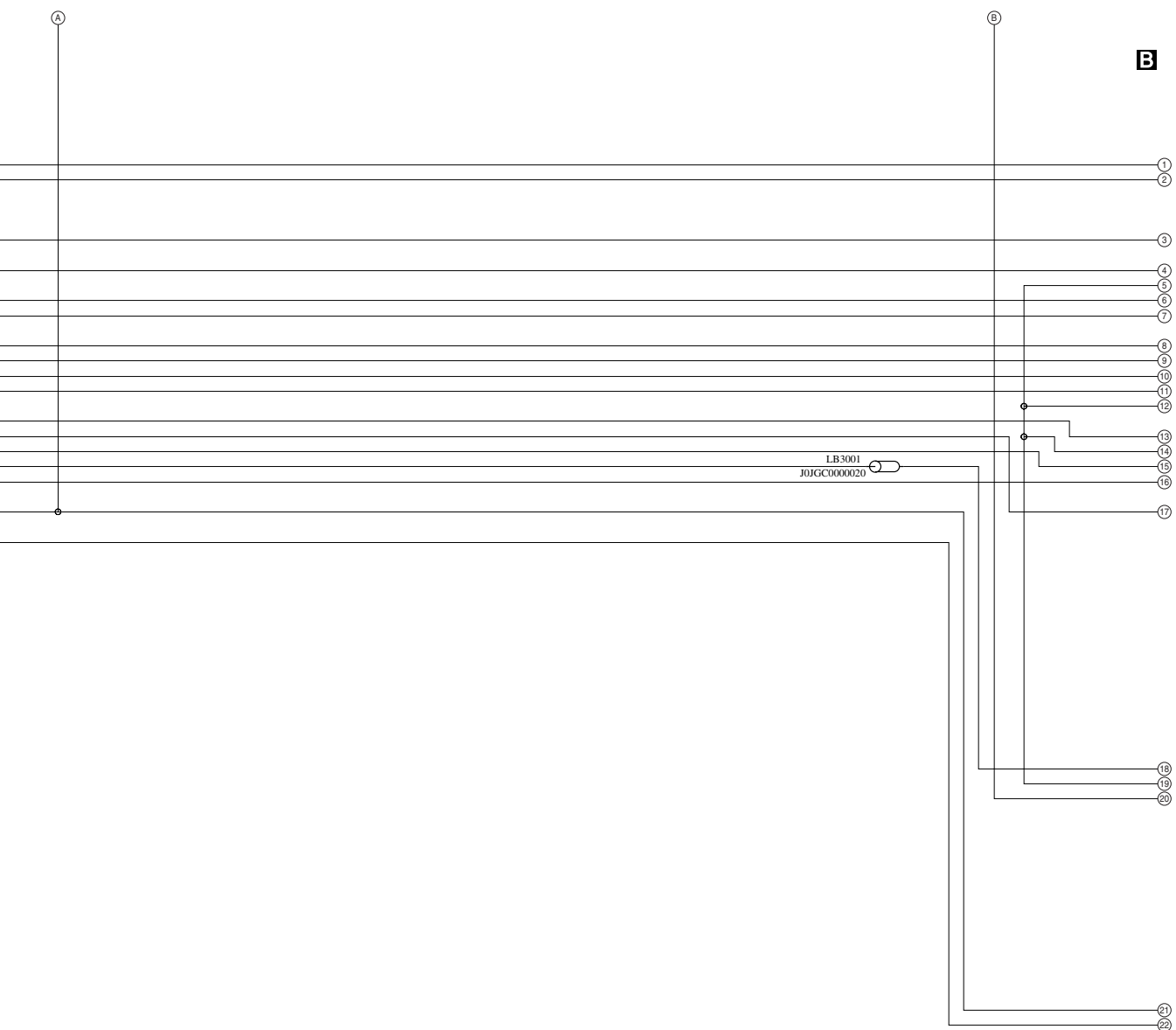


(3/4) LOCATION MAP



NOTE:DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERRING.
THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST,AND MAY BE
SLIGHTLYDIFFERNT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

M:Main Net Section:(Pa
AV:A/V I/O Section:(Pag
DE:Nicam Decoder Sec
T:Timer Section:(Page:



let Section:(Page: **A**)
O Section:(Page: **B**)
n Decoder Section:(Page: **C**)
Section:(Page: **D**)

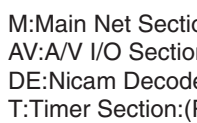
DMR-ES15EB/EP/EC/EG/EBL
A/V I/O(3/4) Section
(Main P.C.B.(2/4))
Schematic Diagram(AV)

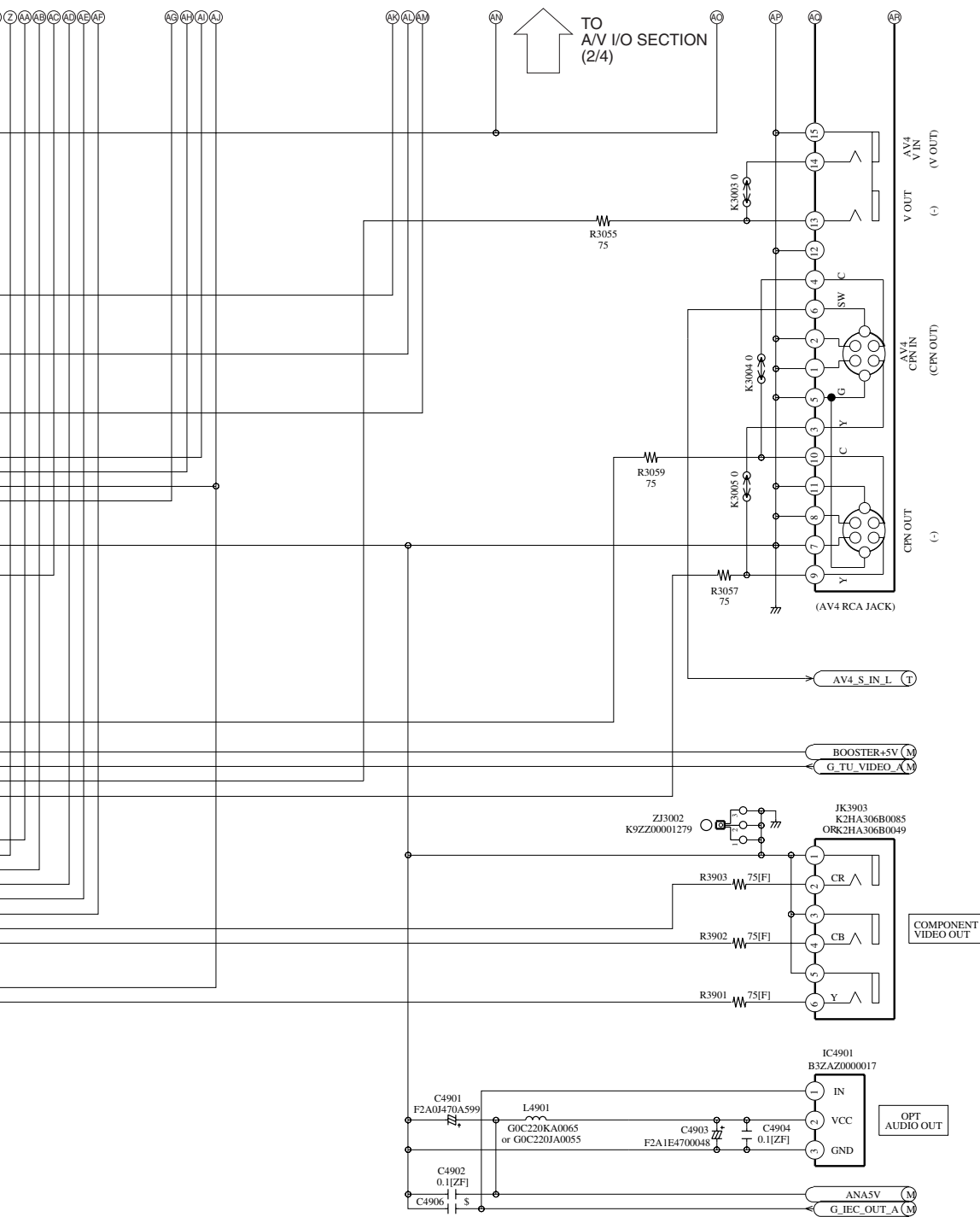
3

4

5





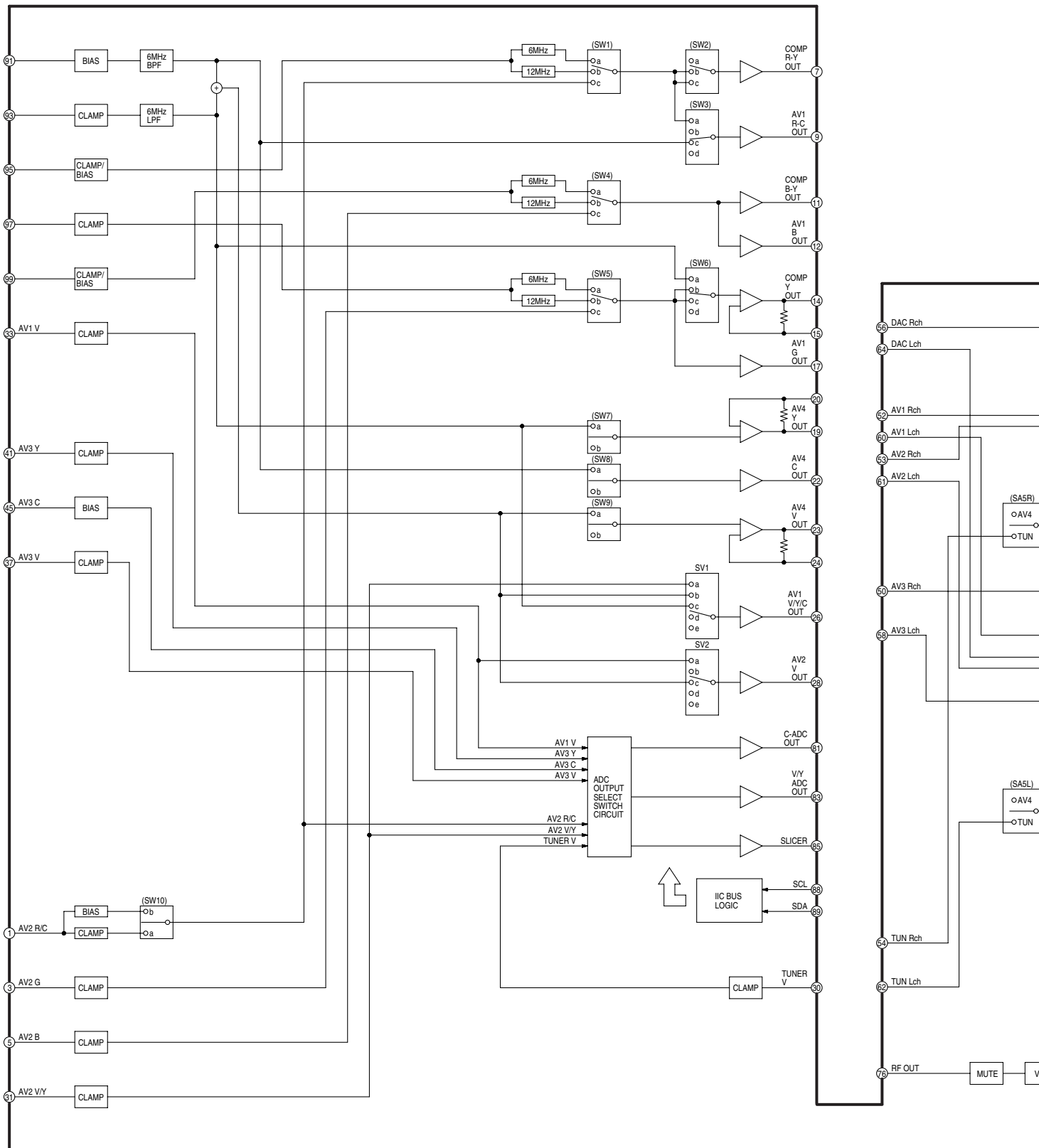


Main Net Section:(Page: **A**)
A/V I/O Section:(Page: **B**)
Nicam Decoder Section:(Page: **C**)
Timer Section:(Page: **D**)

NOTE:DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING.
THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST,AND MAY BE
SLIGHTLYDIFFERNT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

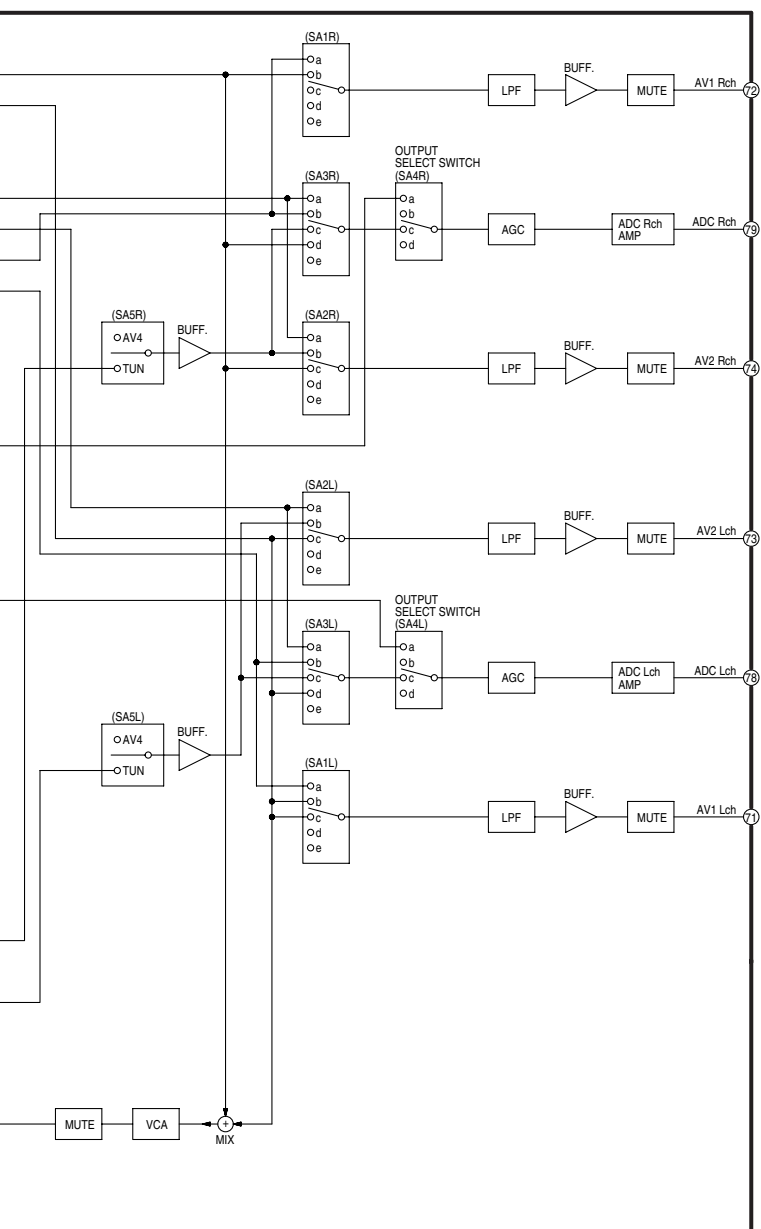
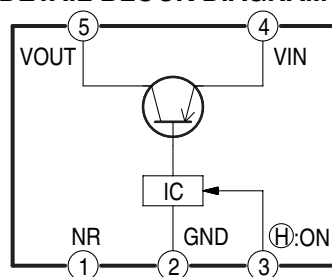
DMR-ES15EB/EP/EC/EG/EBL
A/V I/O(4/4) Section
(Main P.C.B.(2/4))
Schematic Diagram(AV)

IC3001 **VIDEO/AUDIO PROCESSOR** **IC-DETAIL BLOCK DIAGRAM**





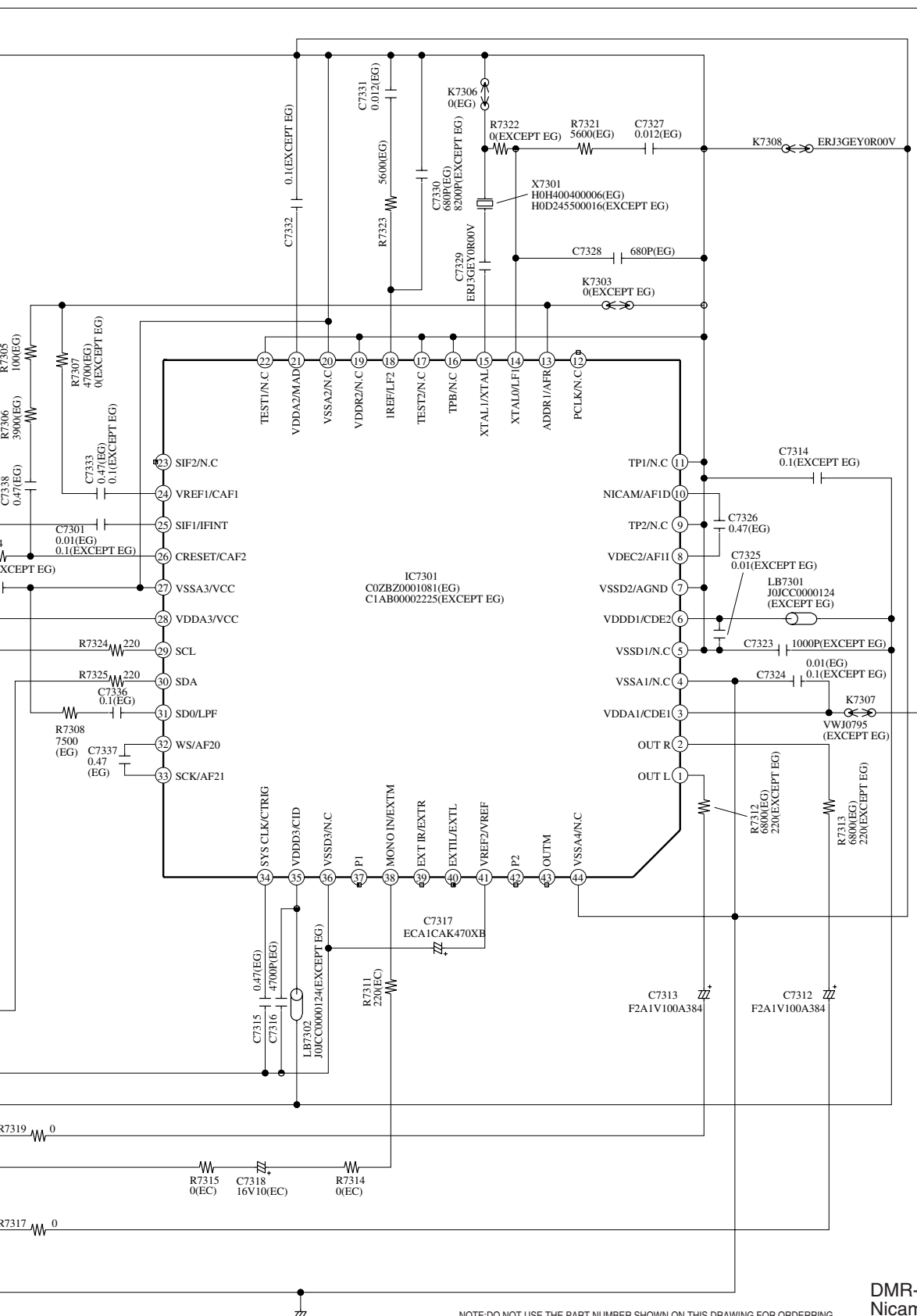
IC4011
AU +5V SWITCHING REGULATOR
IC-DETAIL BLOCK DIAGRAM



IC3001 Detail Block Diagram
IC4011 Detail Block Diagram
DMR-ES15EB/EP/EC/EG/EBL IC-Detail Block Diagram





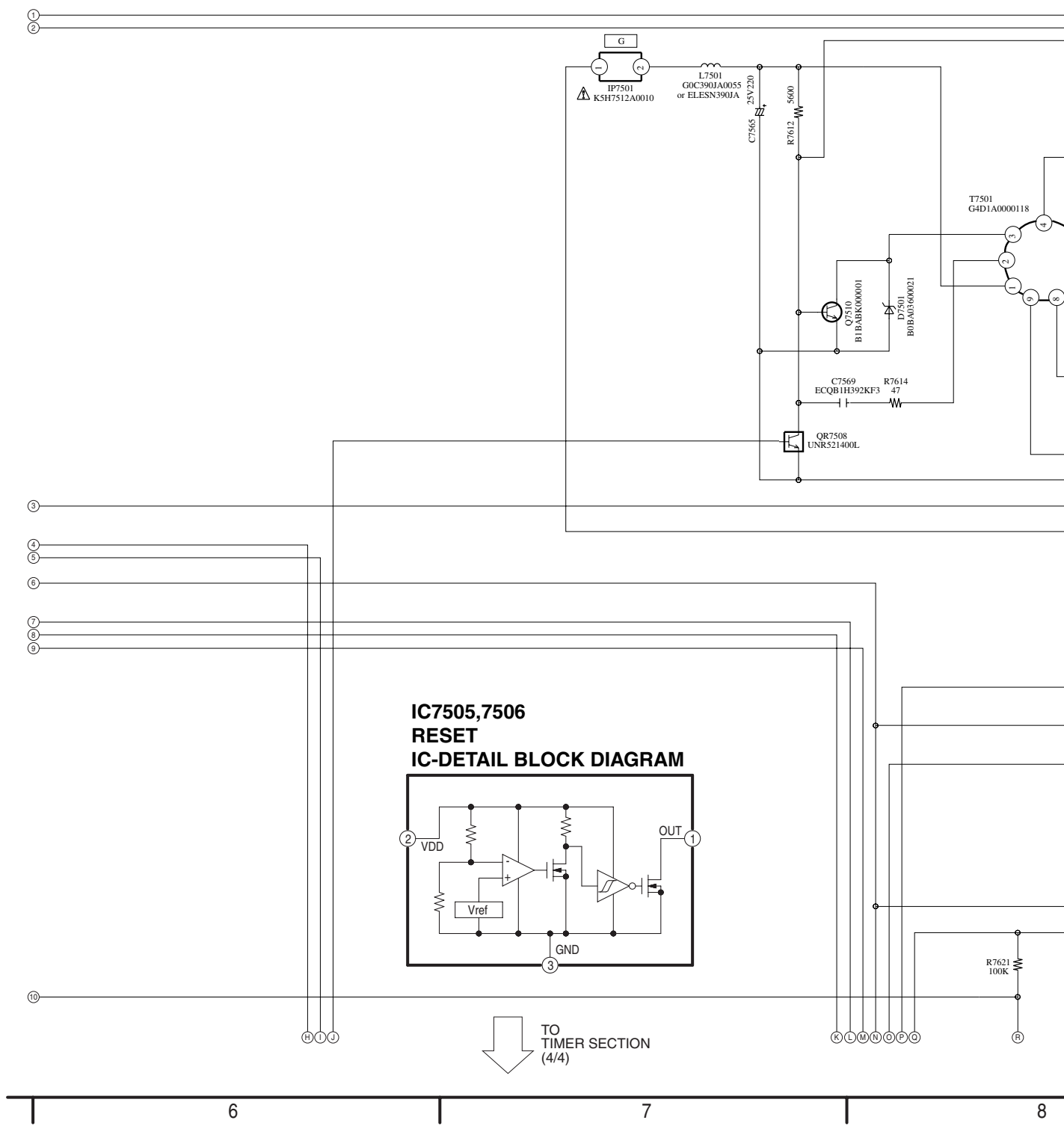


NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING.
THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST AND MAY BE
SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

DMR-ES15EB/EP/EC/EG/EBL
Nicam Decoder Section
(Main P.C.B.(3/4))
Schematic Diagram(DE)

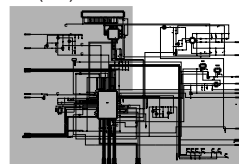


13.13. Timer (2/4) Section (Main P.C.B. (4/4)) Schematic Diagram (T)



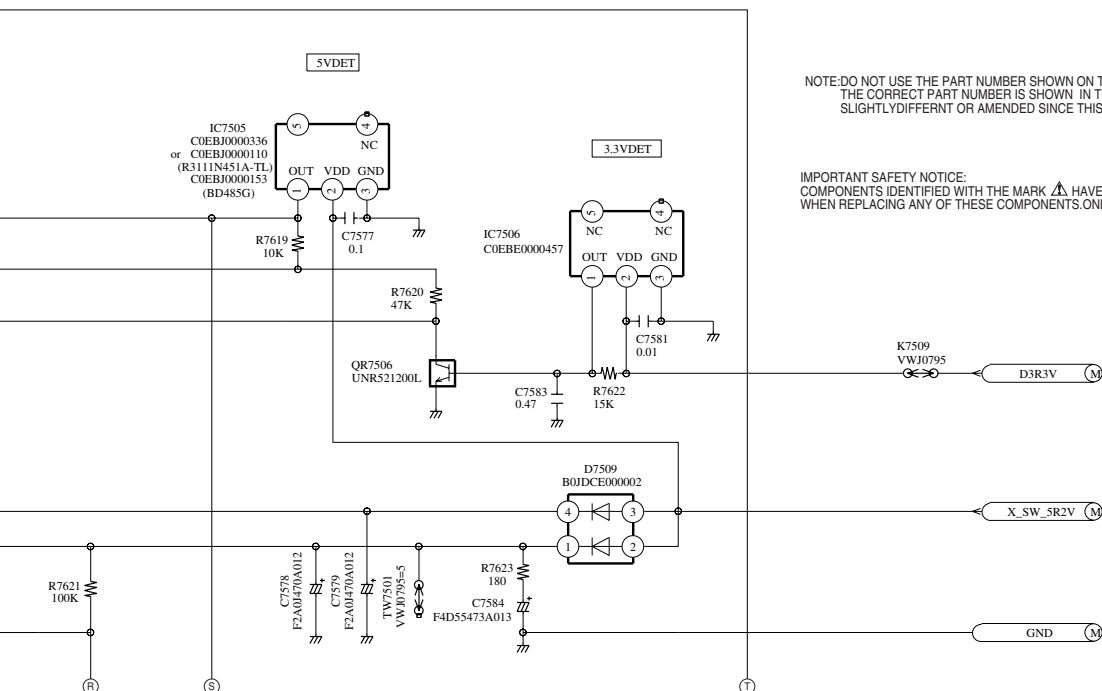
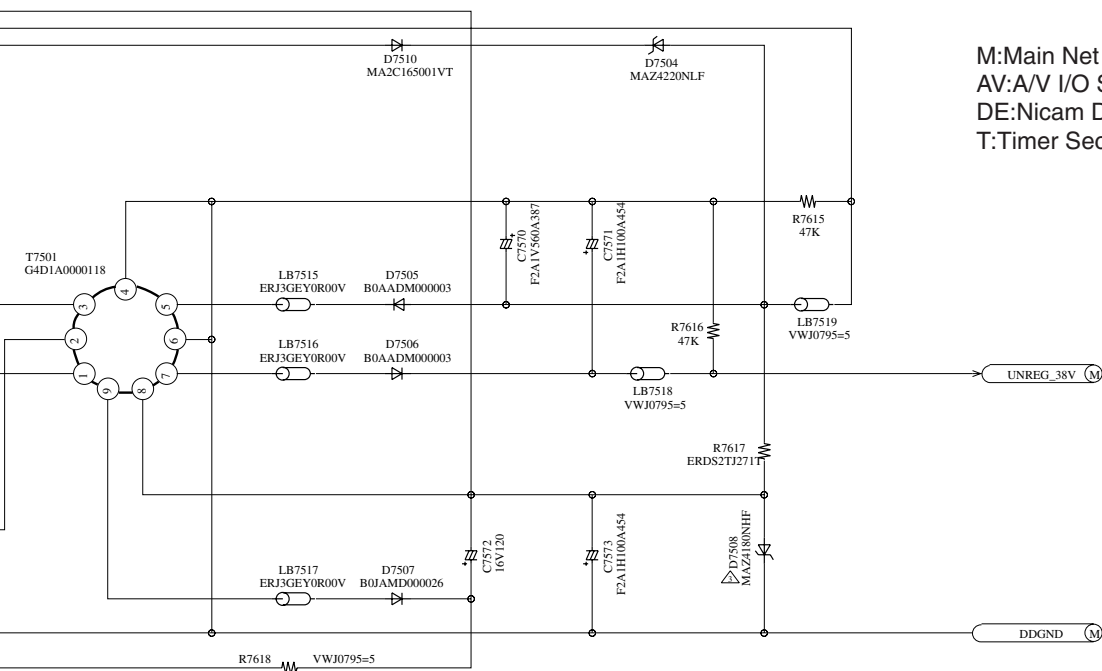


(2/4) LOCATION MAP



D

M:Main Net Section:(Page: **A**)
AV:A/V I/O Section:(Page: **B**)
DE:Nicam Decoder Section:(Page: **C**)
T:Timer Section:(Page: **D**)

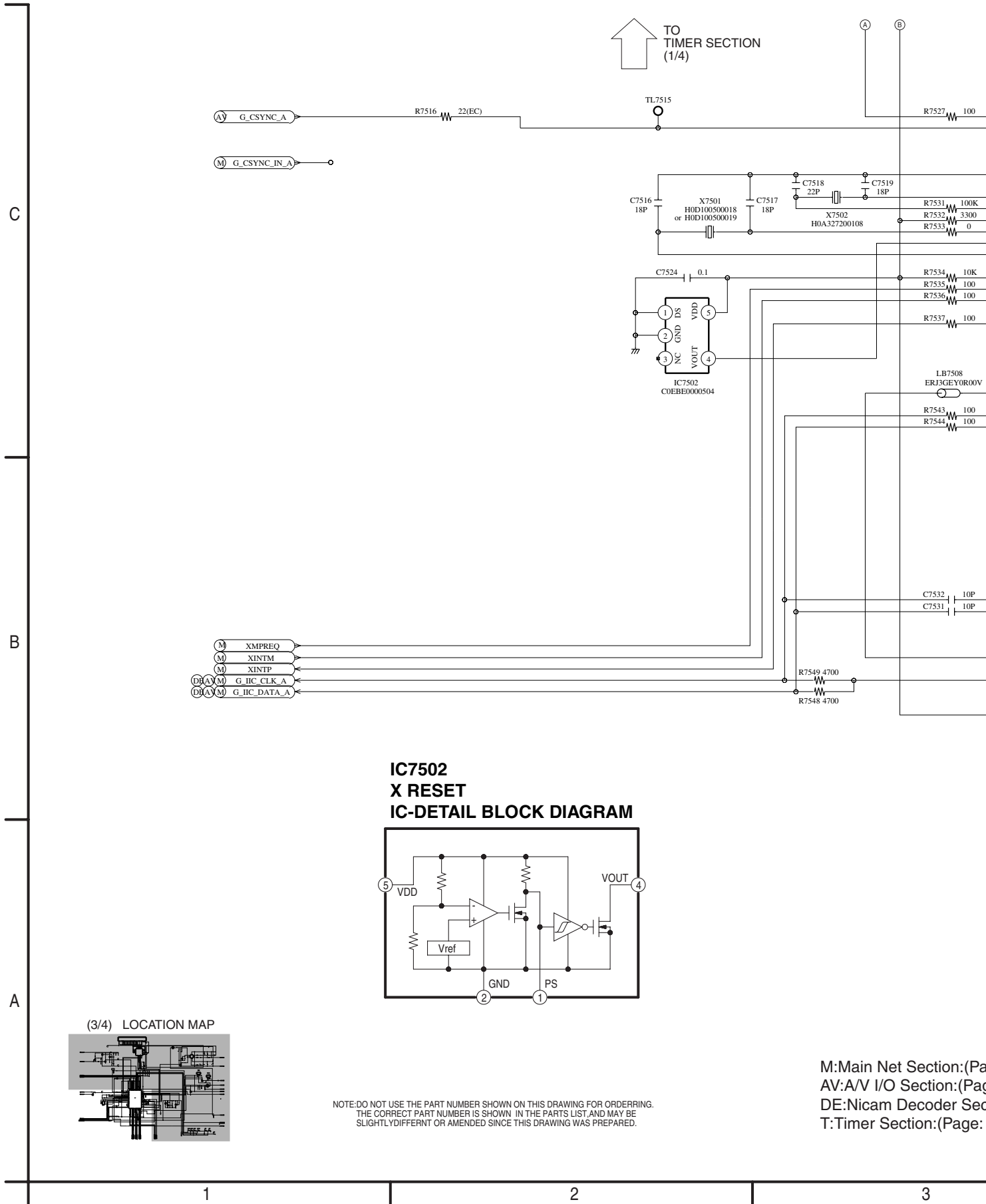


NOTE:DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING.
THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST,AND MAY BE
SLIGHTLYDIFFERNT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

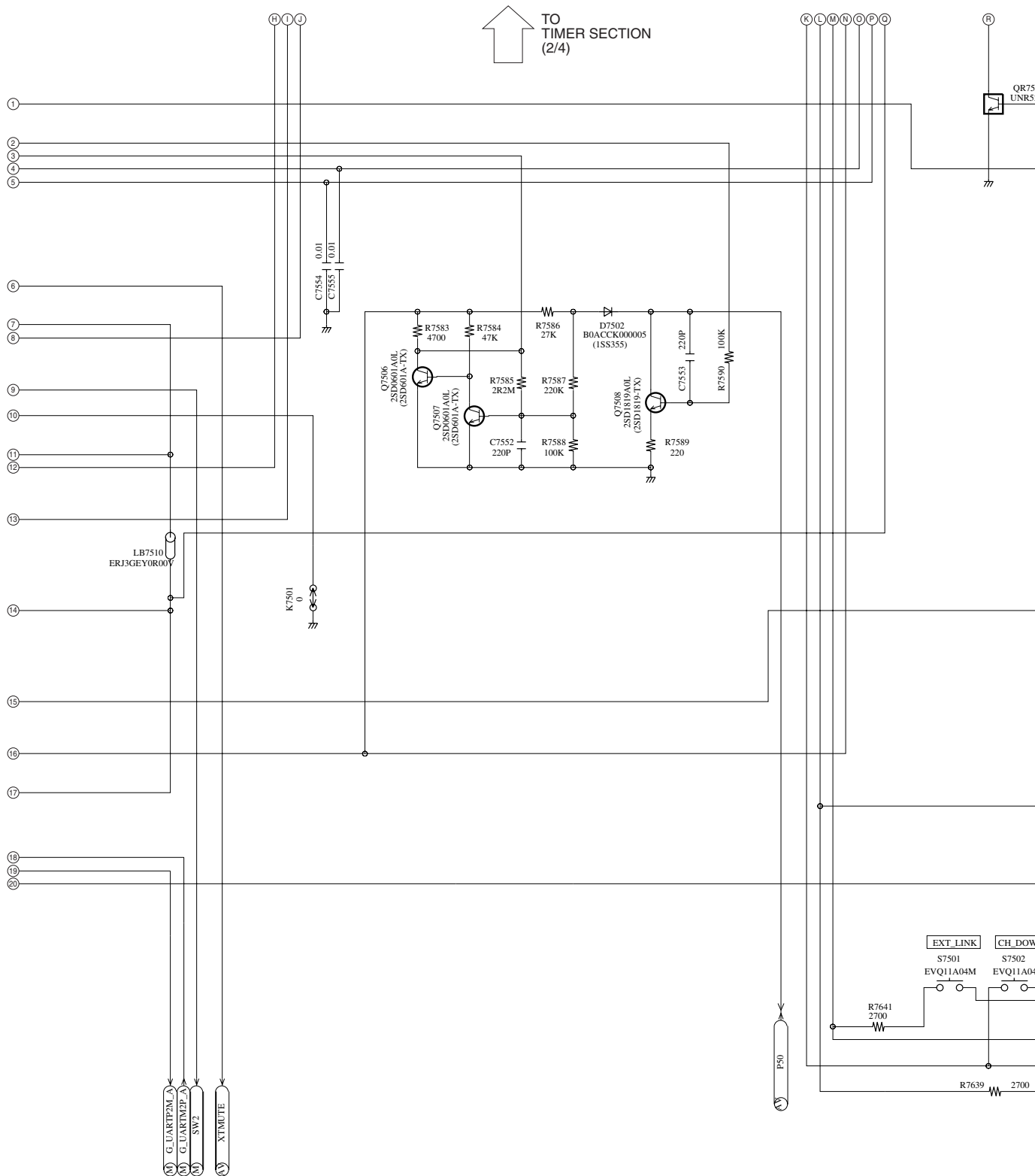
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK  HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS ONLY THE SAME TYPE.

DMR-ES15EB/EP/EC/EG/EBL
TIMER(2/4) Section
(Main P.C.B.(4/4))
Schematic Diagram(T)

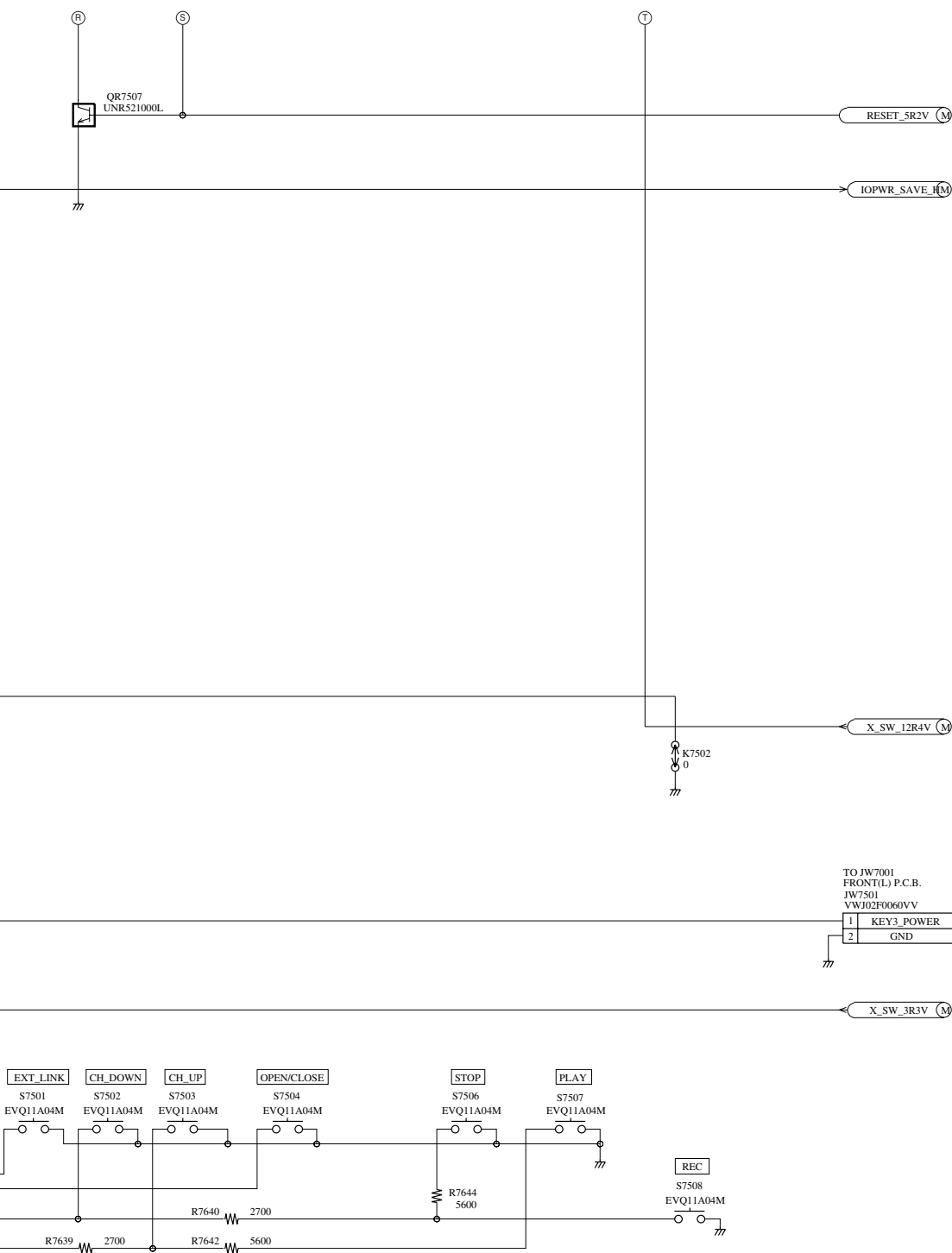
13.14. Timer (3/4) Section (Main P.C.B. (4/4)) Schematic Diagram (T)



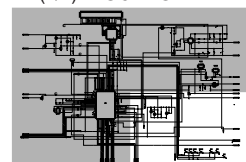
13.15. Timer (4/4) Section (Main P.C.B. (4/4)) Schematic Diagram (T)



M: Main Net Section
AV: A/V I/O Section
DE: Nicam Decoder
T: Timer Section



(4/4) LOCATION MAP

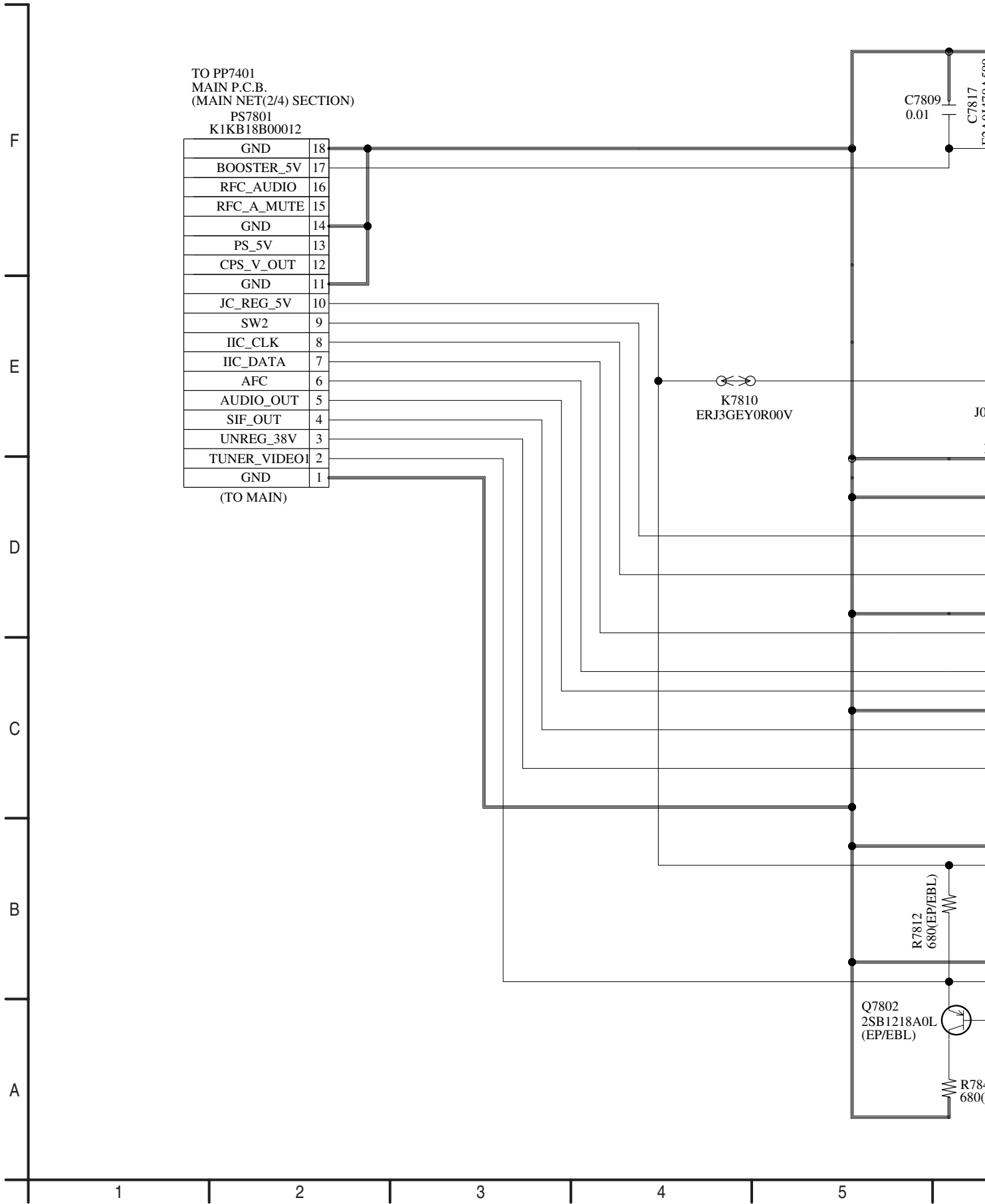


Main Net Section:(Page: **A**)
A/V I/O Section:(Page: **B**)
Nicam Decoder Section:(Page: **C**)
Timer Section:(Page: **D**)

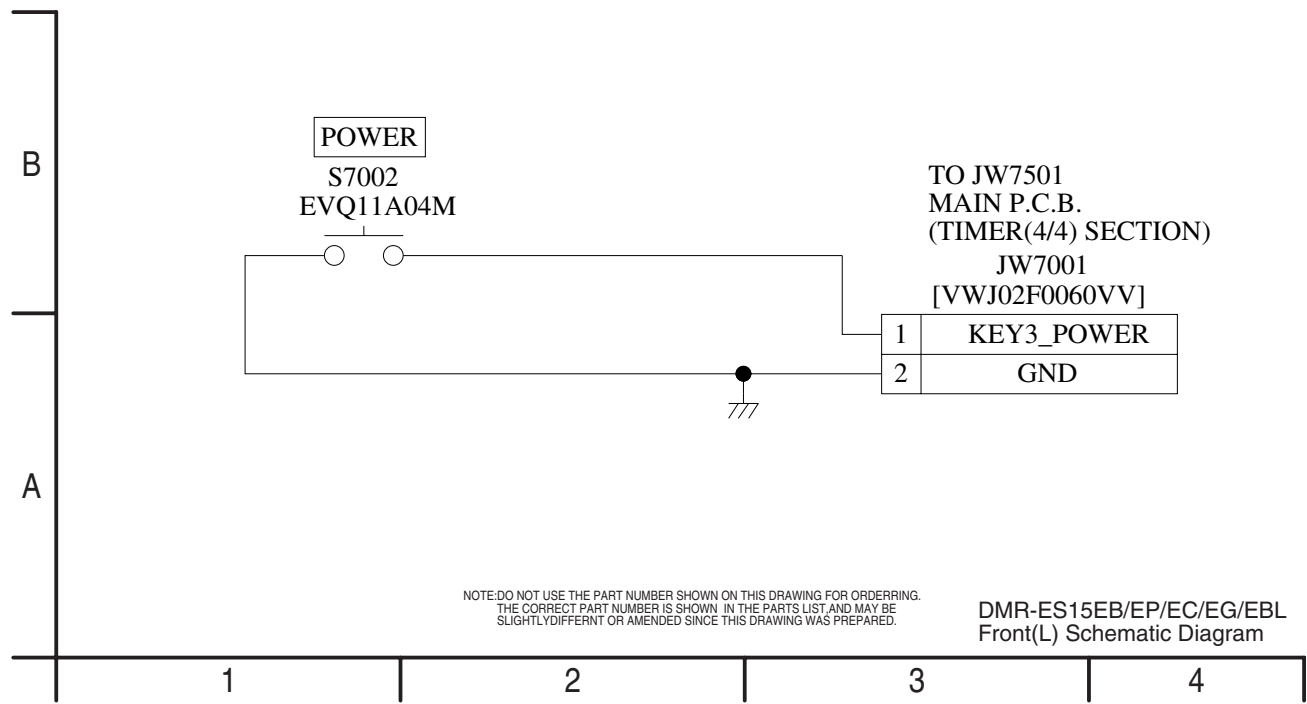
NOTE:DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING.
THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST AND MAY BE
SLIGHTLYDIFFERNT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

DMR-ES15EB/EP/EC/EG/EBL
TIMER(4/4) Section
(Main P.C.B.(4/4))
Schematic Diagram(T)

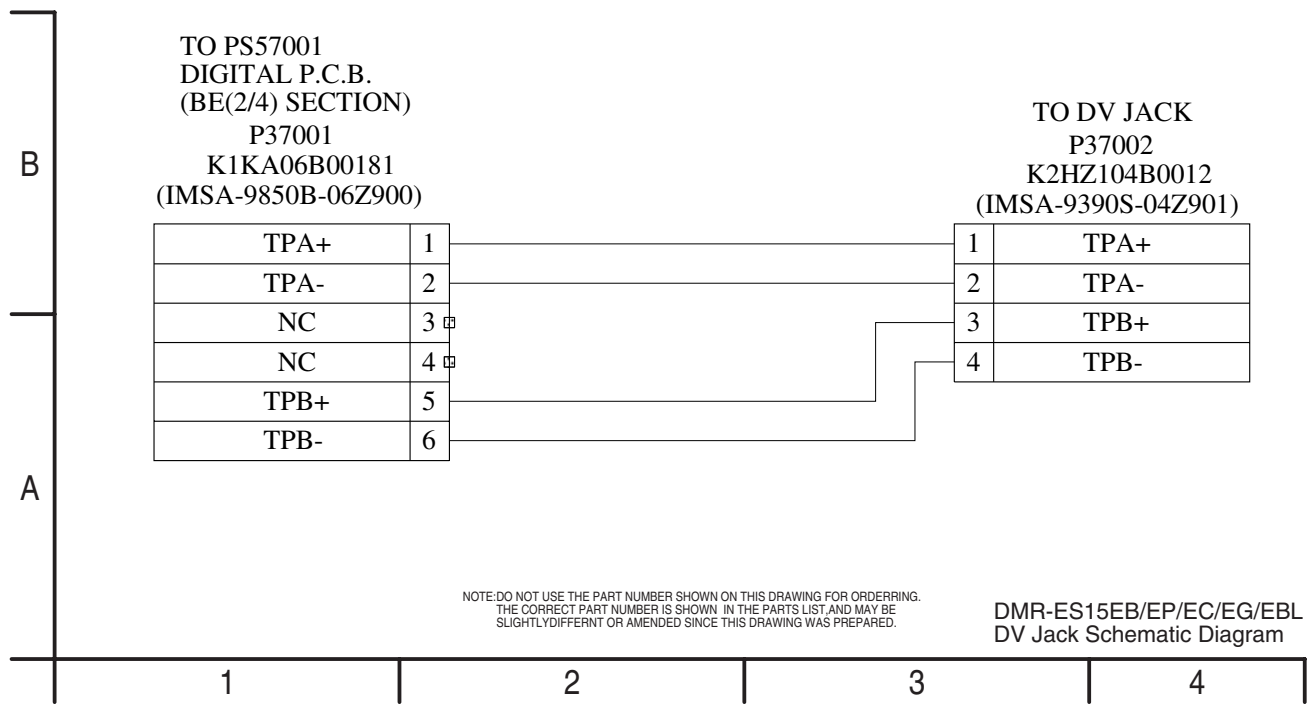
13.16. Tuner Pack Schematic Diagram



13.17. Front (L) Schematic Diagram



13.18. DV Jack Schematic Diagram





L
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n
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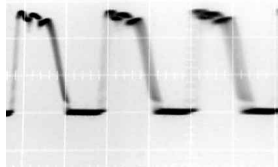
Ref No.	IC1501								IC1503					IC1506							
MODE	1	2	3	4	5		1	2	3	4	5		1	2	3	4	5				
REC	0	6.2	12.3	12.3	12.4		4.1	0	4.9	-	3.3		4.8	6.1	0	5.2	5.2				
PLAY	0	6.2	12.3	12.3	12.4		4.1	0	4.9	-	3.3		4.8	6.1	0	5.2	5.2				
STOP	0	6.2	12.3	12.3	12.4		4.1	0	4.9	-	3.3		4.8	6.1	0	5.2	5.2				
Ref No.	IC1507								IC1510					IC1520							
MODE	1	2	3	4	5	6	7	8		1	2	3	4	5		1	2	3	4	5	
REC	5.1	-	3.4	0	6.1	-	-	6.1		6.1	4.9	5.0	-	0		6.1	0	4.8	-	5.1	
PLAY	5.1	-	3.4	0	6.1	-	-	6.1		6.1	4.9	5.0	-	0		6.1	0	4.8	-	5.1	
STOP	5.1	-	3.4	0	6.1	-	-	6.1		6.1	4.9	5.0	-	0		6.1	0	4.8	-	5.1	
Ref No.	IC1521																				
MODE	1	2	3	4	5	6	7	8													
REC	3.3	-	2.0	0	4.8	-	-	4.1													
PLAY	3.3	-	2.0	0	4.8	-	-	4.1													
STOP	3.3	-	2.0	0	4.8	-	-	4.1													
Ref No.	IC3001																				
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
REC	2.0	2.5	1.6	0	1.6	5.0	1.6	5.0	0.4	0.3	1.6	0.4	-	1.7	1.7	1.6	0.4	0	1.7	1.7	
PLAY	2.0	2.5	1.6	0	1.6	5.0	1.6	5.0	0.4	0.3	1.6	0.4	-	1.7	1.7	1.6	0.4	0	1.7	1.7	
STOP	2.0	2.5	1.6	0	1.6	5.0	1.6	5.0	0.4	1.6	1.6	0.4	-	1.7	1.7	1.6	0.4	0	1.7	1.7	
Ref No.	IC3001																				
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
REC	0	1.7	1.7	1.7	5.0	1.4	0.1	1.4	0	2.1	1.6	0	1.6	0	0	-	1.6	-	1.6	5.0	
PLAY	0	1.7	1.7	1.7	5.0	1.4	0.1	1.4	0	2.1	1.6	0	1.6	0	0	-	1.6	-	1.6	5.0	
STOP	0	1.7	1.6	1.7	5.0	1.4	0.2	1.4	0	2.1	1.6	0	1.6	0	2.1	-	1.6	-	1.6	5.0	
Ref No.	IC3001																				
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
REC	1.6	5.1	2.0	0	2.0	11.6	1.6	2.0	4.5	4.4	-	4.0	4.5	4.5	-	4.5	9.1	4.4	-	4.5	
PLAY	1.6	5.1	2.0	0	2.0	11.6	1.6	2.0	4.5	4.4	-	4.0	4.5	4.5	-	4.5	9.1	4.4	-	4.5	
STOP	1.6	5.1	2.0	0	2.0	11.6	1.6	2.0	4.5	4.5	-	4.5	4.5	4.4	-	3.9	9.1	4.0	-	3.7	
Ref No.	IC3001																				
MODE	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	
REC	4.5	4.5	-	4.5	9.0	0	0	0	0	0	4.5	4.5	4.5	4.5	0	-	9.5	4.5	4.5	0	
PLAY	4.5	4.5	-	4.5	9.0	0	0	0	0	0	4.5	4.5	4.5	4.5	0	-	9.5	4.5	4.5	0	
STOP	3.7	3.7	-	3.8	9.0	0	0	0	0	0	4.5	4.5	4.5	4.5	0	-	0.3	4.5	4.5	0	
Ref No.	IC3001																				
MODE	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	
REC	2.1	5.0	1.5	5.1	2.1	4.5	3.6	4.8	4.6	5.0	2.0	2.8	2.1	5.1	2.0	0	2.1	0	2.0	2.5	
PLAY	2.1	5.0	1.5	5.1	2.1	4.5	3.6	4.8	4.6	5.0	2.0	2.8	2.1	5.1	2.0	0	2.1	0	2.0	2.5	
STOP	4.7	5.0	1.5	5.1	2.1	4.5	3.6	4.8	4.6	5.1	5.0	2.8	2.1	5.1	2.0	0	2.1	0	2.0	2.5	
Ref No.	IC4009								IC4011												
MODE	1	2	3	4	5	6	7	8		1	2	3	4	5							
REC	5.8	5.8	5.8	0	5.8	5.8	5.8	11.6		3.4	0	4.8	6.1	5.0							
PLAY	5.8	5.8	5.8	0	5.8	5.8	5.8	11.6		3.4	0	4.8	6.1	5.0							
STOP	5.8	5.8	5.8	0	5.8	5.8	5.8	11.6		3.4	0	4.8	6.1	5.0							
Ref No.	IC4012								IC4901												
MODE	1	2	3	4	5	6	7	8		1	2	3									
REC	5.8	5.8	5.8	0	5.8	5.8	5.8	11.6		1.7	5.0	0									
PLAY	5.8	5.8	5.8	0	5.8	5.8	5.8	11.6		1.7	5.0	0									
STOP	5.8	5.8	5.8	0	5.8	5.8	5.8	11.6		1.7	5.0	0									
Ref No.	IC7301																				
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
REC	2.4	2.4	2.4	0	0	2.4	0	2.4	0	2.4	0	-	0	2.9	2.6	0	0	2.8	0	0	
PLAY	2.4	2.4	2.4	0	0	2.4	0	2.4	0	2.4	0	-	0	2.9	2.6	0	0	2.8	0	0	
STOP	2.4	2.4	2.4	0	0	2.4	0	2.4	0	2.4	0	-	0	2.9	2.6	0	0	2.8	0	0	
Ref No.	IC7301																				
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
REC	2.3	0	-	1.5	2.4	1.4	0	5.0	5.0	5.0	2.9	2.4	2.4	2.5	2.5	0	-	2.4	-	-	
PLAY	2.3	0	-	1.5	2.4	1.4	0	5.0	5.0	5.0	2.9	2.4	2.4	2.5	2.5	0	-	2.4	-	-	
STOP	2.3	0	-	1.5	2.4	1.4	0	5.0	5.0	5.0	2.9	2.4	2.4	2.5	2.5	0	-	2.4	-	-	
Ref No.	IC7301																				
MODE	41	42	43	44																	
REC	2.4	-	-	0																	
PLAY	2.4	-	-	0																	
STOP	2.4	-	-	0																	

Ref No.	IC7302				IC7401					IC7402										
MODE	1	2	3		1	2	3	4	5		1	2	3	4	5					
REC	5.0	0	4.9		12.4	4.2	11.6	2.6	0		6.1	0	6.1	-	5.1					
PLAY	5.0	0	4.9		12.4	4.2	11.6	2.6	0		6.1	0	6.1	-	5.1					
STOP	5.0	0	4.9		12.4	4.2	11.6	2.6	0		6.1	0	6.1	-	5.1					
Ref No.	IC7403								IC7404											
MODE	1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8			
REC	5.0	-	3.4	0	4.2	-	-	6.1		0	0	0	0	3.2	3.2	0	3.3			
PLAY	5.0	-	3.4	0	4.2	-	-	6.1		0	0	0	0	3.2	3.2	0	3.3			
STOP	5.0	-	3.4	0	4.2	-	-	6.1		0	0	0	0	3.2	3.2	0	3.3			
Ref No.	IC7501																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
REC	0.3	-	4.9	3.8	0.8	0.8	4.4	0	0	2.1	1.2	4.9	1.4	0	2.1	3.3	4.9	3.3	3.2	-
PLAY	0.3	-	4.9	3.8	0.8	0.8	4.4	0	0	0.7	1.2	4.9	1.4	0	2.1	3.3	4.9	3.3	3.2	-
STOP	0.3	-	4.9	4.5	0.9	0.9	4.4	0	0	0.7	1.2	4.9	1.4	0	2.1	3.3	4.9	3.3	3.2	-
Ref No.	IC7501																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
REC	3.1	-	3.2	0	-	-	-	-	4.8	4.6	3.3	3.3	0	-	3.3	3.2	3.3	-	0	4.9
PLAY	3.1	-	3.2	0	-	-	-	-	4.8	4.6	3.3	3.3	0	-	3.3	3.2	3.3	-	0	4.9
STOP	3.1	-	3.2	0	-	-	-	-	4.8	4.6	3.3	3.3	0	-	3.3	3.2	3.3	-	0	4.9
Ref No.	IC7501																			
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
REC	0	4.9	4.9	4.8	0	4.9	5.0	5.0	4.9	0	4.9	-	0	-	-0.1	0	0	0	-	5.0
PLAY	0	4.9	4.9	4.8	0	4.9	5.0	5.0	4.9	0	4.9	-	0	-	-0.1	0	0	0	-	5.0
STOP	4.9	4.9	4.9	4.8	0	4.9	5.0	5.0	4.9	0	4.9	-	0	-	-0.1	0	0	0	-	5.0
Ref No.	IC7501																			
MODE	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
REC	0	5.0	0	0	4.9	-	-	-	-	-	-	-	4.9	0	5.0	0	-	-	0	-
PLAY	0	5.0	0	0	4.9	-	-	-	-	-	-	-	4.9	0	5.0	0	-	-	0	-
STOP	0	5.0	0	0	4.9	-	-	-	-	-	-	-	4.9	0	5.0	0	-	-	0	-
Ref No.	IC7501																			
MODE	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
REC	3.3	0	0	4.7	3.2	5.0	5.0	5.0	2.0	5.0	0	0	2.5	1.2	1.6	0	0	2.0	5.0	0
PLAY	3.3	0	0	4.7	3.2	5.0	5.0	5.0	2.0	5.0	0	0	2.5	1.2	1.6	0	0	2.0	5.0	0
STOP	3.3	0	0	4.7	0	5.0	5.0	5.0	2.0	5.0	0	0	2.5	1.2	1.6	0	0	2.0	5.0	0
Ref No.	IC7502																			
MODE	1	2	3	4	5															
REC	0	0	-	4.9	5.0															
PLAY	0	0	-	4.9	5.0															
STOP	0	0	-	4.9	5.0															
Ref No.	IC7504																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
REC	-	-	0	0	2.2	2.2	5.0	4.9	4.4	2.5	-18.1	-21.1	-21.1	-	-21.8	-21.1	-	-17.6	-17.6	-18.1
PLAY	-	-	0	0	2.2	2.2	5.0	4.9	4.4	2.5	-18.1	-17.6	-17.6	-	-21.8	-17.6	-	-21.1	-21.1	-18.1
STOP	-	-	0	0	2.2	2.2	5.0	4.9	4.4	0.8	-18.1	-21.1	-21.1	-	-21.8	-21.1	-	-17.6	-17.6	-18.1
Ref No.	IC7504																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
REC	-17.6	-14.2	-18.1	-14.2	-21.0	-17.7	-21.0	-10.8	-17.7	-17.6	-17.6	-17.6	-17.7	-17.6	-17.7	-17.9	-17.9	-	-	-
PLAY	-17.6	-0.6	-18.1	-4.0	-14.3	-17.7	-10.8	-4.0	-17.7	-10.8	-21.1	-21.1	-17.7	-21.4	-17.7	-4.4	-4.4	-	-	-
STOP	-17.6	-14.2	-18.1	-14.2	-21.0	-17.7	-21.0	-10.8	-17.7	-17.6	-17.6	-17.6	-17.7	-17.6	-17.7	-17.9	-17.9	-	-	-
Ref No.	IC7505					IC7506														
MODE	1	2	3	4	5		1	2	3	4	5									
REC	4.9	5.1	0	-	-		2.2	3.3	0	-	-									
PLAY	4.9	5.1	0	-	-		2.2	3.3	0	-	-									
STOP	4.9	5.1	0	-	-		2.2	3.3	0	-	-									
Ref No.	Q4006				Q4007				Q4008				Q4009				Q7401			
MODE	E	C	B		E	C	B		E	C	B		E	C	B		E	C	B	
REC	0	0	-0.1		0	0	-0.1		0	0	-0.1		0	0	-0.1		0	11.6	0	
PLAY	0	0	-0.1		0	0	-0.1		0	0	-0.1		0	0	-0.1		0	11.6	0	
STOP	0	0	-0.1		0	0	-0.1		0	0	-0.1		0	0	-0.1		0	11.6	0	
Ref No.	Q7402				Q7501				Q7502				Q7503				Q7504			
MODE	E	C	B		E	C	B		E	C	B		E	C	B		E	C	B	
REC	0	0	4.9		2.7	0	2.1		2.0	5.0	1.6		2.7	0	2.1		2.0	5.0	1.6	
PLAY	0	0	4.9		2.7	0	2.1		2.0	5.0	1.6		2.7	0	2.1		2.0	5.0	1.6	
STOP	0	0	4.9		2.7	0	2.1		2.0	5.0	1.6		2.7	0	2.1		2.0	5.0	1.6	
Ref No.	Q7506				Q7507				Q7508				Q7510							
MODE	E	C	B		E	C	B		E	C	B		E	C	B					
REC	0	5.0	0		0	0	4.6		0	4.6	0		0	9.1	-0.2					
PLAY	0	5.0	0		0	0	4.6		0	4.6	0		0	9.3	-0.1					
STOP	0	5.0	0		0	0	5.1		0	5.1	0.1		0	9.1	-0.2					
Ref No.	QR1501				QR1502				QR4002				QR4003				QR4004			
MODE	E	C	B		E	C	B		E	C	B		E	C	B		E	C	B	
REC	0	0	4.9		0	6.2	0		5.1	-0.1	5.1		0	0	2.3		0	5.1	0	
PLAY	0	0	4.9		0	6.2	0		5.1	-0.1	5.1		0	0	2.3		0	5.1	0	
STOP	0	0	4.9		0	6.2	0		5.1	-0.1	5.1		0	0	2.3		0	5.1	0	
Ref No.	QR7401				QR7402				QR7403				QR7404				QR7506			
MODE	E	C	B		E	C	B		E	C	B		E	C	B		E	C	B	
REC	0	4.2	0		38.1	38.0	0		0	0	4.9		0	0	0		0	0	2.2	
PLAY	0	4.2	0		38.1	38.0	0		0	0	4.9		0	0	0		0	0	2.2	
STOP	0	4.2	0		38.1	38.0	0		0	0	4.9		0	0	0		0	0	2.2	
Ref No.	QR7507				QR7508															
MODE	E	C	B		E	C	B													
REC	0	0	4.9		0	-0.2	0													
PLAY	0	0	4.9		0	-0.1	0													
STOP	0	0	4.9		0	-0.2	0													

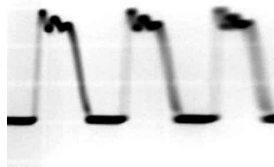
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[illegible]

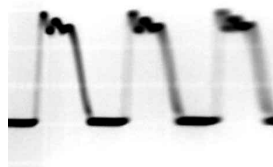
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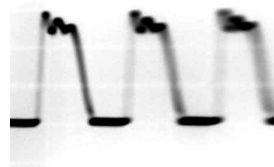
T1150-2,3 STOP
10Vp-p ($5\ \mu\text{sec.div}$)



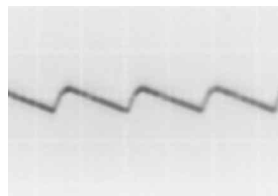
T1150-4,5 STOP
15Vp-p ($5\ \mu\text{sec.div}$)



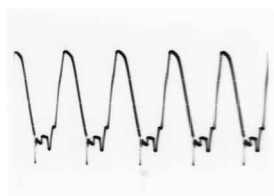
T1150-6 STOP
30Vp-p ($5\ \mu\text{sec.div}$)



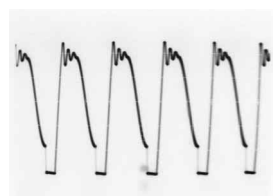
T1150-8 STOP
30Vp-p ($5\ \mu\text{sec.div}$)



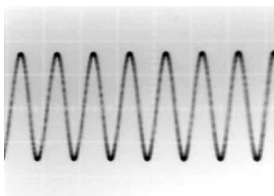
T1150-12 STOP
10Vp-p (2m sec.div)



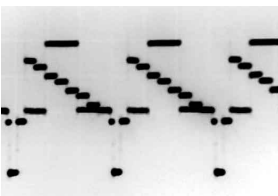
IC1150-1 STOP
10.0Vp-p ($5\ \mu\text{sec.div}$)



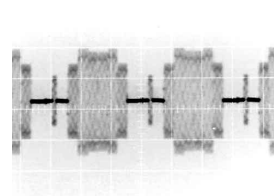
IC1150-9 STOP
580Vp-p ($5\ \mu\text{sec.div}$)



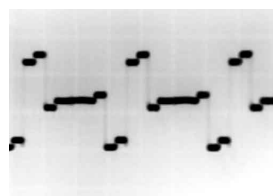
P7402-17,19 REC/PLAY
0.8Vp-p (1m sec.div)



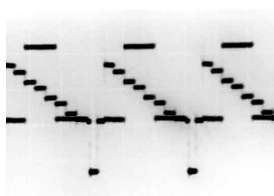
P7402-39 REC/PLAY
1.0Vp-p ($20\ \mu\text{sec.div}$)



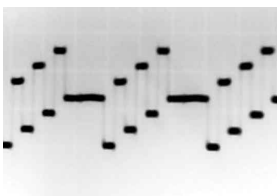
P7402-43 REC/PLAY
0.8Vp-p ($20\ \mu\text{sec.div}$)



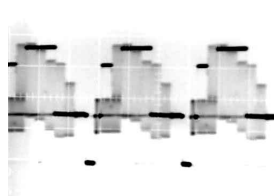
P7402-47 REC/PLAY
0.6Vp-p ($20\ \mu\text{sec.div}$)



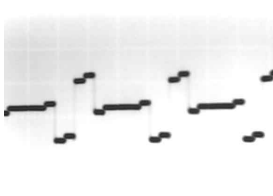
P7402-51 REC/PLAY
1.0Vp-p ($20\ \mu\text{sec.div}$)



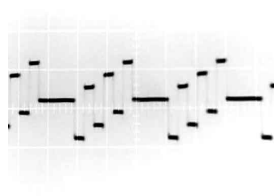
P7402-55 REC/PLAY
0.6Vp-p ($20\ \mu\text{sec.div}$)



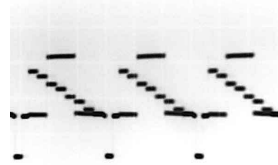
P7402-59 REC/PLAY
1.0Vp-p ($20\ \mu\text{sec.div}$)



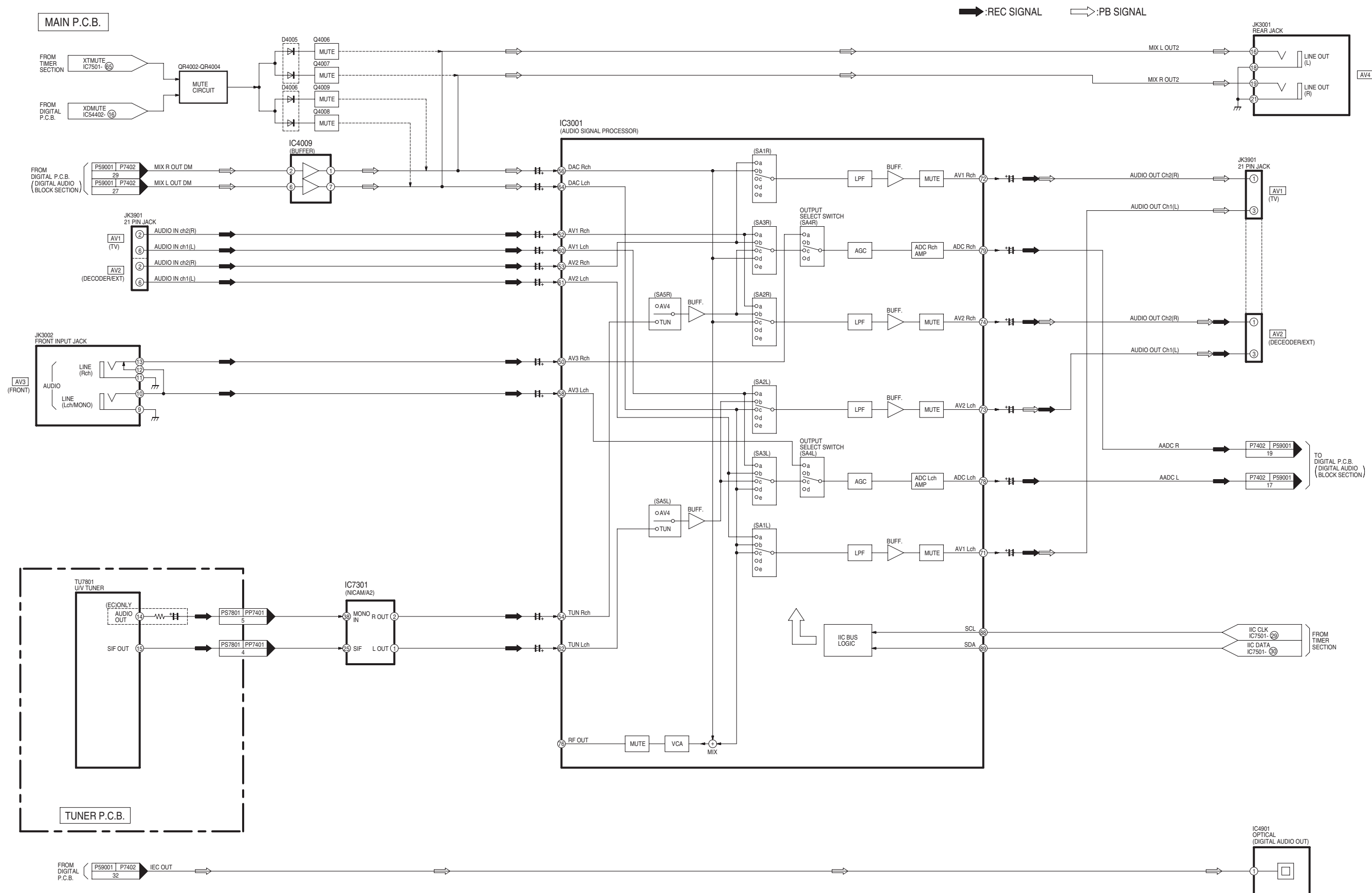
JK3903-2 REC/PLAY
1.0Vp-p ($20\ \mu\text{sec.div}$)



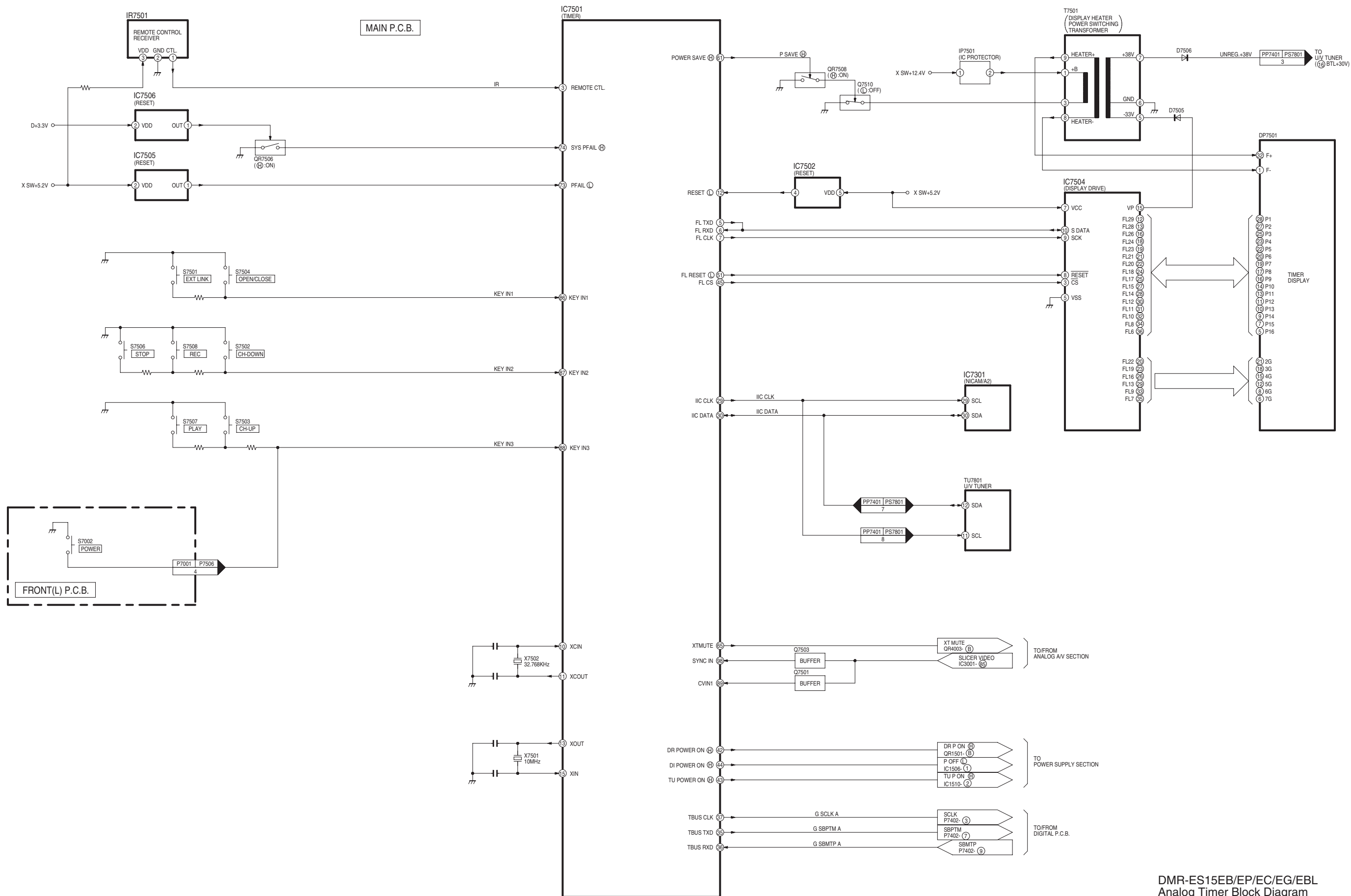
JK3903-4 REC/PLAY
1.0Vp-p ($20\ \mu\text{sec.div}$)



JK3903-6 REC/PLAY
2.0Vp-p ($20\ \mu\text{sec.div}$)



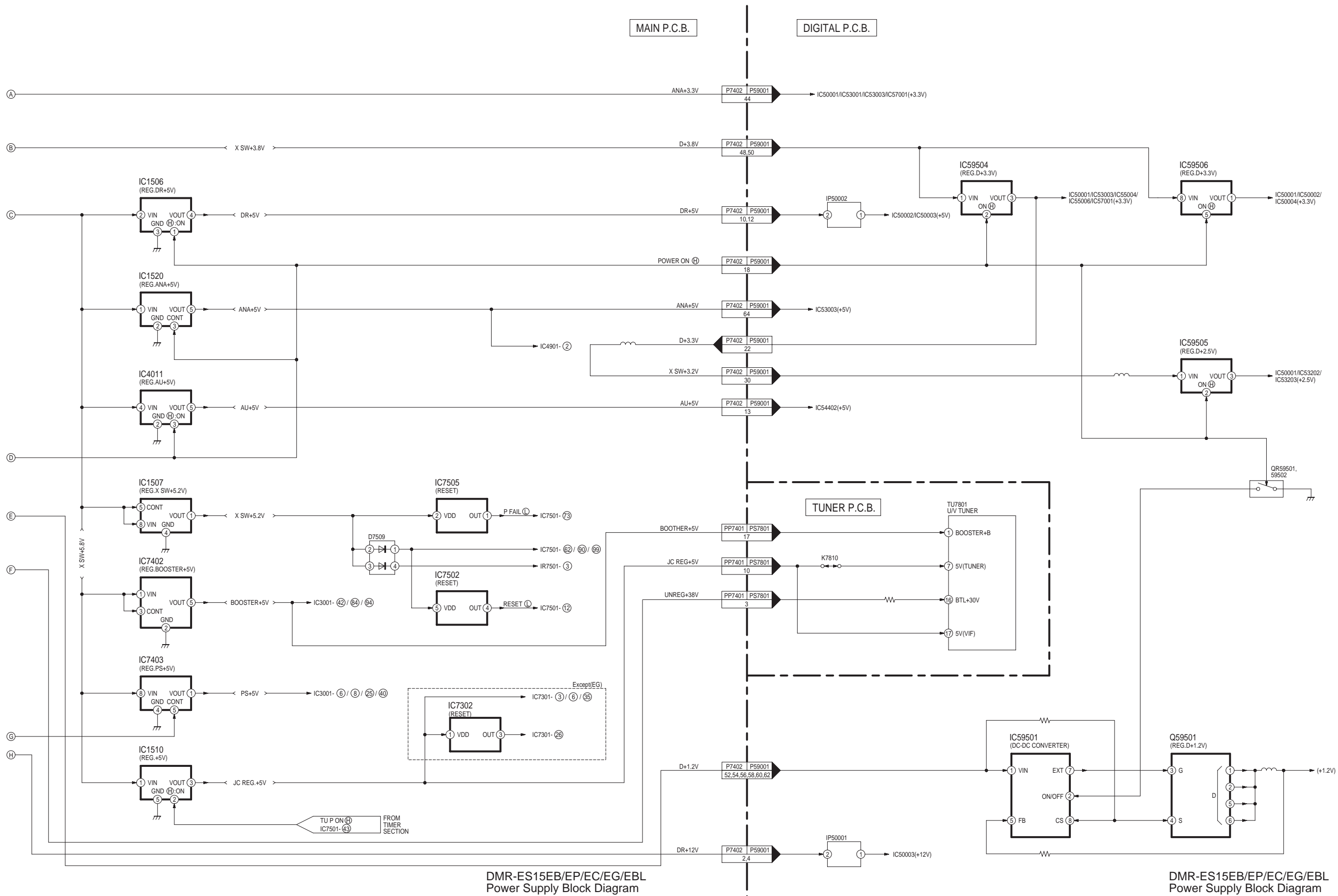
DMR-ES15EB/EP/EC/EG/EBL
 Analog Audio Block Diagram



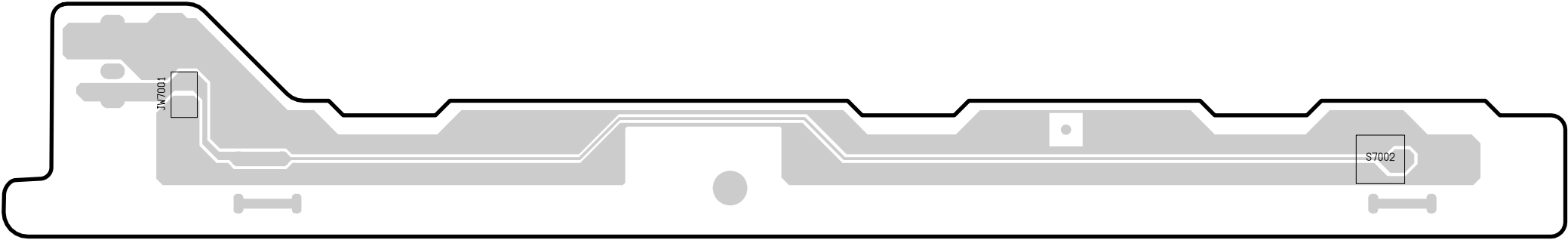
DMR-ES15EB/EP/EC/EG/EBL
Analog Timer Block Diagram







Front (L) P.C.B.



DMR-ES15EB/EP/EC/EG/EBL
FRONT (L) P.C.B.
(VEP70161A)

Main P.C.B.																	
Integrated Circuit		TL7505	D-3	LB7302	E-4	C3013	D-7	C4065	B-6	C7512	D-2	R3922	D-8	R7325	F-4	R7585	E-4
IC1501	B-6	TL7509	E-4	LB7303	F-5	C3014	D-7	C4067	E-6	C7513	D-2	R3923	C-8	R7326	F-5	R7586	E-4
IC1505	D-5	TL7510	E-4	LB7304	E-5	C3015	E-7	C4070	C-6	C7514	E-4	R3924	E-8	R7401	F-6	R7587	E-4
IC1506	C-3	TL7511	D-3	LB7401	F-7	C3016	E-7	C4072	B-6	C7516	E-3	R3925	D-8	R7402	B-5	R7588	E-4
IC1507	B-3	TL7512	E-4	LB7402	C-4	C3018	E-7	C4082	B-8	C7517	E-3	R3926	D-8	R7403	F-7	R7589	E-4
IC1510	F-6	TL7513	E-2	LB7403	C-4	C3020	E-7	C4083	C-8	C7518	E-3	R3927	D-8	R7404	F-7	R7590	E-5
IC1520	B-4	TL7514	C-2	LB7404	C-3	C3022	E-7	C4092	B-6	C7519	E-3	R3928	E-8	R7405	F-8	R7597	F-3
IC1521	B-4	TL7515	E-3	LB7405	C-4	C3024	D-6	C4901	B-7	C7520	E-3	R3929	D-8	R7406	F-8	R7598	F-3
IC3001	D-6	TW7501	F-4	LB7406	C-3	C3025	D-6	C4902	B-7	C7522	E-3	R3930	D-8	R7407	F-7	R7599	F-3
IC4009	B-7	Connector		LB7407	C-3	C3026	D-6	C4903	B-7	C7523	E-3	R3932	E-8	R7408	F-7	R7600	E-5
IC4011	D-4	JK3001	B-8	LB7408	C-3	C3027	D-6	C4904	A-8	C7524	E-3	R3934	E-7	R7409	B-4	R7601	E-4
IC4012	B-6	JK3002	B-2	LB7409	C-4	C3028	D-6	C7301	F-5	C7528	E-3	R3935	D-8	R7410	C-4	R7606	E-4
IC4901	A-8	JK3901	D-8	LB7410	C-4	C3029	D-6	C7303	E-5	C7531	D-4	R3975	D-6	R7411	B-3	R7607	F-3
IC7301	F-5	JK3903	E-8	LB7411	C-4	C3031	D-6	C7304	E-5	C7532	D-3	R3976	D-6	R7412	B-3	R7608	F-4
IC7302	F-4	P1501	B-6	LB7412	B-4	C3032	D-7	C7305	F-5	C7534	E-3	R3983	C-8	R7414	B-3	R7612	F-3
IC7401	B-6	P7402	C-4	LB7413	C-3	C3033	D-6	C7306	F-5	C7541	E-3	R3984	D-8	R7444	B-6	R7614	F-3
IC7402	F-7	PP7401	F-7	LB7414	C-3	C3034	D-6	C7307	F-4	C7542	E-3	R3987	D-8	R7445	B-6	R7615	E-3
IC7403	F-8	Diode		LB7415	C-4	C3035	F-7	C7308	F-4	C7543	E-3	R3988	D-8	R7446	B-6	R7616	F-3
IC7404	B-3	D3901	E-8	LB7416	C-3	C3036	E-7	C7309	E-5	C7544	E-3	R3989	D-8	R7448	C-4	R7617	F-3
IC7501	E-3	D4001	D-5	LB7417	C-4	C3037	E-7	C7310	E-5	C7546	E-3	R3990	D-8	R7501	D-3	R7618	F-2
IC7502	E-3	D4005	B-8	LB7418	C-4	C3038	E-7	C7311	E-5	C7551	E-4	R3991	D-7	R7502	D-3	R7619	F-4
IC7504	D-2	D4006	B-7	LB7419	C-4	C3039	E-6	C7312	E-5	C7552	E-4	R3992	D-8	R7503	D-3	R7620	F-4
IC7505	F-4	D7403	F-8	LB7420	B-4	C3040	E-7	C7313	E-5	C7553	E-5	R3993	D-7	R7504	D-3	R7621	F-4
IC7506	F-4	D7501	F-3	LB7501	D-3	C3041	D-6	C7314	E-5	C7554	F-4	R3994	D-8	R7505	D-3	R7622	F-4
Transistor		D7502	E-4	LB7502	D-2	C3058	C-8	C7315	E-4	C7555	F-4	R4003	C-4	R7506	D-3	R7623	F-4
Q4006	C-8	D7504	F-3	LB7507	E-3	C3060	C-8	C7316	E-4	C7556	F-3	R4004	C-5	R7507	D-3	R7639	D-2
Q4007	C-7	D7505	F-3	LB7508	D-3	C3070	D-5	C7317	E-5	C7557	F-3	R4005	C-4	R7508	D-3	R7640	E-2
Q4008	B-7	D7506	F-3	LB7509	E-3	C3071	C-2	C7318	E-5	C7558	F-3	R4006	E-6	R7509	F-3	R7641	C-2
Q4009	C-7	D7507	F-2	LB7510	E-4	C3072	B-2	C7323	E-5	C7565	E-3	R4010	E-6	R7510	F-3	R7642	D-2
Q7401	F-8	D7508	F-2	LB7515	F-3	C3910	C-7	C7324	E-5	C7569	F-3	R4011	E-6	R7516	D-3	R7644	E-2
Q7402	F-7	D7509	F-4	LB7516	F-3	C3911	C-7	C7325	E-5	C7570	F-3	R4013	F-6	R7517	E-4	R7648	F-2
Q7501	D-3	D7510	F-3	LB7517	F-2	C3914	E-6	C7326	F-5	C7571	F-3	R4046	B-6	R7518	D-2	R7651	D-5
Q7502	D-3	Crystal Osillator		LB7518	F-3	C3915	E-6	C7327	F-5	C7572	F-2	R4047	C-6	R7520	E-4	R7653	E-4
Q7503	D-3	X7301	F-5	LB7519	F-3	C3916	C-7	C7328	F-5	C7573	F-3	R4055	B-7	R7521	E-2	R7655	E-4
Q7504	D-3	X7501	E-3	Capacitor		C3917	C-8	C7329	F-5	C7577	F-4	R4057	C-7	R7523	E-2	Switch	
Q7506	E-4	X7502	E-3	C1502	B-5	C3918	E-6	C7330	F-5	C7578	F-4	R4066	B-6	R7527	E-3	S7002	A-6
Q7507	E-4	IC Protector		C1503	B-6	C3919	E-6	C7331	F-5	C7579	F-4	R4067	B-6	R7528	E-2	S7501	C-2
Q7508	E-5	IP1501	B-6	C1504	B-6	C3928	C-7	C7332	F-5	C7581	F-4	R4071	B-8	R7529	E-2	S7502	C-2
Q7510	F-3	IP7501	E-3	C1506	B-5	C3929	C-7	C7333	F-5	C7583	F-4	R4074	C-8	R7531	E-3	S7503	D-2
Transistor-resistor		IR7501	F-2	C1508	B-4	C3935	E-6	C7334	F-5	C7584	F-4	R4076	B-8	R7532	E-3	S7504	D-2
QR1501	B-5	Coil		C1509	C-4	C3953	D-8	C7335	F-5	C7592	F-2	R4077	B-7	R7533	E-3	S7506	E-2
QR1502	B-6	L1501	B-5	C1510	B-4	C3954	D-8	C7336	F-4	Resistor		R4078	B-8	R7534	D-3	S7507	E-2
QR4002	C-5	L4901	B-7	C1511	B-4	C3955	D-8	C7337	F-4	R1509	D-3	R4079	B-7	R7535	E-3	Transformer	
QR4003	D-5	L7303	F-5	C1512	B-4	C3956	D-8	C7338	F-5	R1510	D-3	R4080	C-8	R7536	D-3	T7501	F-3
QR4004	D-5	L7304	F-5	C1515	B-6	C3957	D-7	C7339	F-5	R1511	D-3	R4081	C-8	R7537	D-3	Display	
QR7401	E-4	L7401	C-4	C1518	B-6	C3958	C-8	C7340	E-5	R1518	B-5	R4088	B-7	R7538	E-4	DP7501	
QR7402	F-7	L7402	C-3	C1520	D-5	C3961	D-7	C7401	C-6	R1519	B-5	R4089	B-7	R7543	D-3		
QR7403	F-7	L7501	E-3	C1522	D-5	C3962	D-7	C7402	C-8	R3001	E-7	R4090	C-8	R7544	D-3		
QR7404	F-7	LB1502	B-6	C1523	C-3	C4003	D-7	C7404	F-8	R3003	F-6	R4093	C-8	R7548	D-4		
QR7506	F-4	LB1503	B-6	C1524	C-3	C4008	E-6	C7406	F-8	R3006	D-6	R4094	E-6	R7549	D-3		
QR7507	F-4	LB1504	B-6	C1525	D-3	C4019	D-6	C7407	F-7	R3007	D-6	R7304	F-5	R7558	E-3		
QR7508	F-3	LB1506	B-6	C1535	F-6	C4021	D-6	C7412	F-7	R3009	D-6	R7305	F-5	R7559	E-3		
Test Point		LB3001	E-7	C1536	F-6	C4023	E-6	C7413	F-7	R3055	B-8	R7306	F-5	R7561	D-4		
CL4001	E-6	LB3002	F-7	C1538	B-3	C4024	E-6	C7414	C-3	R3057	B-8	R7307	F-5	R7562	E-4		
CL7501	E-3	LB3003	E-6	C1539	B-3	C4025	E-6	C7415	C-3	R3059	B-8	R7308	F-4	R7564	D-4		
CL7502	E-3	LB3006	C-8	C1540	B-3	C4027	E-6	C7417	B-3	R3060	B-2	R7311	E-5	R7565	E-4		
CL7503	E-3	LB3008	C-8	C3001	D-6	C4028	F-6	C7418	B-3	R3061	B-2	R7312	E-5	R7566	E-4		
CL7504	E-4	LB3009	B-2	C3002	D-6	C4033	B-6	C7419	C-3	R3062	B-2	R7313	E-5	R7567	E-4		
CL7505	E-4	LB3010	B-2	C3003	D-6	C4034	C-6	C7439	B-5	R3901	F-8	R7314	E-5	R7569	D-4		
CL7506	E-4	LB3011	B-2	C3004	D-6	C4055	D-4	C7501	D-3	R3902	E-8	R7315	E-5	R7570	E-4		
CL7507	E-4	LB3012	B-2	C3005	D-6	C4056	D-4	C7502	D-3	R3903	E-8	R7317	E-5	R7571	E-4		
CL7508	E-4	LB3013	C-2	C3006	D-7	C4057	C-7	C7503	D-3	R3912	C-7	R7318	E-5	R7572	E-4		
TL3001	D-6	LB3907	D-8	C3007	D-7	C4059	D-4	C7504	D-3	R3913	C-7	R7319	E-5	R7576	D-5		
TL7401	B-3	LB3908	D-8	C3008	D-7	C4060	B-7	C7505	D-3	R3914	C-7	R7320	E-5	R7577	D-5		
TL7402	F-7	LB3911	D-8	C3009	D-7	C4061	C-6	C7507	D-3	R3918	C-7	R7321	F-5	R7579	D-5		
TL7501	E-3	LB3912	D-7	C3010	D-7	C4062	B-6	C7509	D-2	R3919	D-7	R7322	F-5	R7582	E-4		
TL7502	E-2	LB3913	D-7	C3011	D-7	C4063	D-7	C7510	D-2	R3920	D-7	R7323	F-5	R7583	E-4		
TL7503	E-4	LB7301	F-5	C3012	D-7	C4064	C-7	C7511	D-2	R3921	D-7	R7324	F-4	R7584	E-4		

C

B

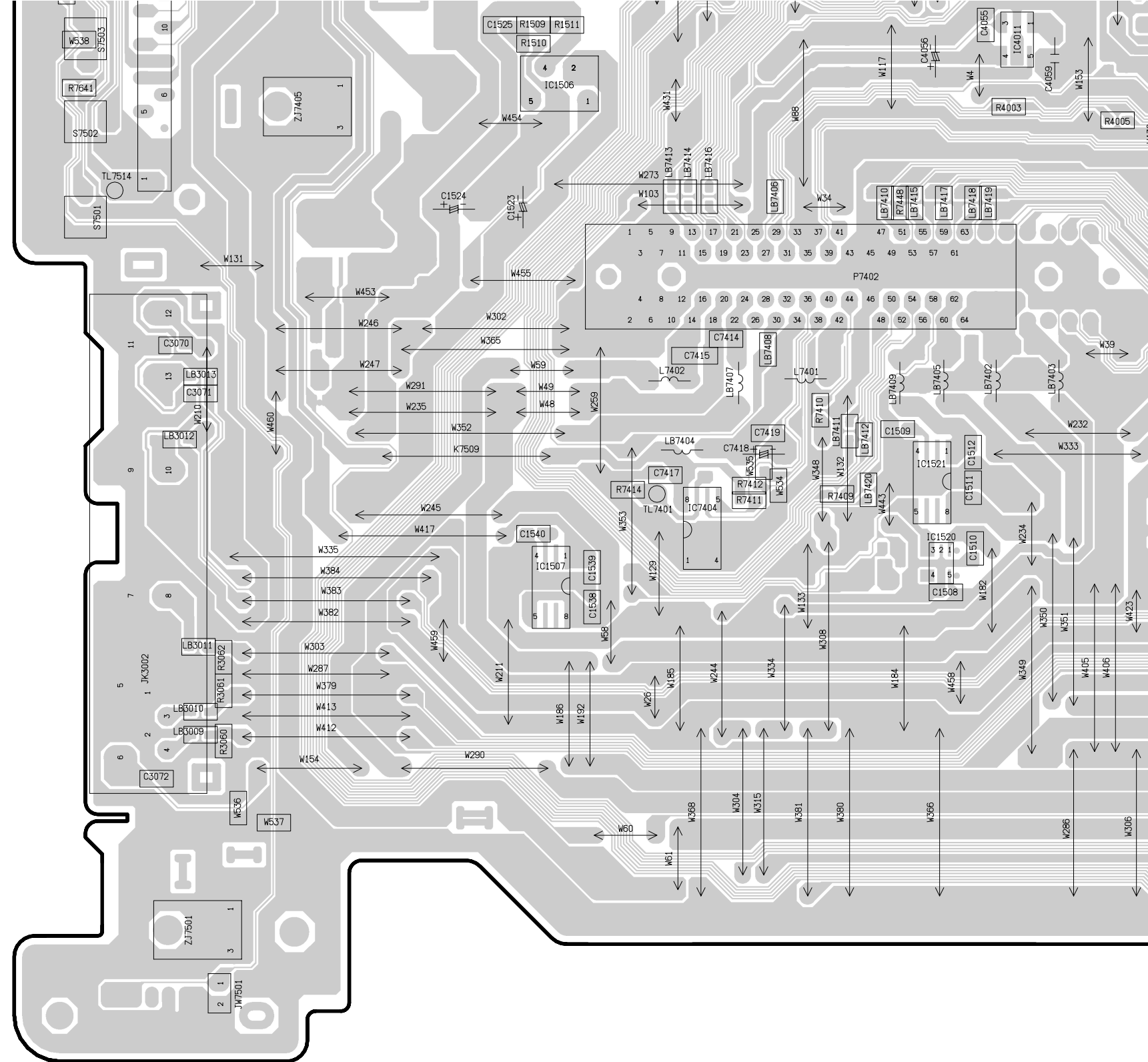
A

1

2

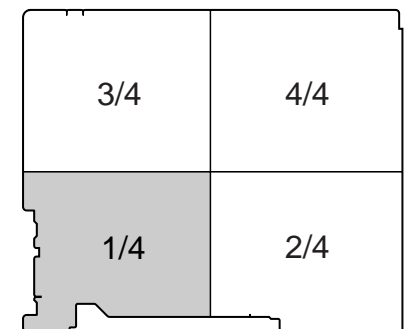
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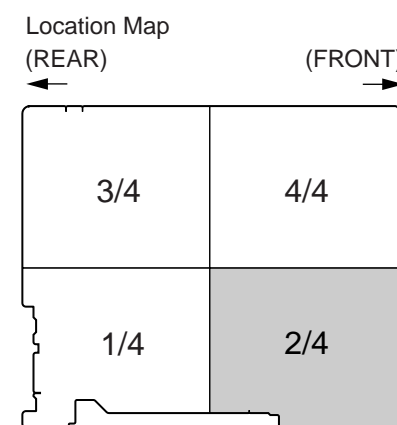


Location Map
(REAR)

(FRONT)

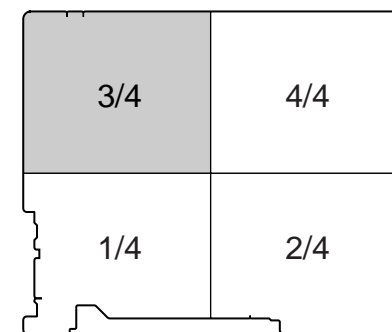
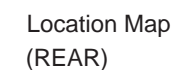


DMR-ES15EB/EP/EC/EG/EBL
Main P.C.B.
(RFKB79119C:ES15EB,
RFKB79119DT:ES15EP,
RFKB79119BT:ES15EC,
RFKB79119AT:ES15EG
RFKB79119D:ES15EBL)
(1/4 Section)



8

D

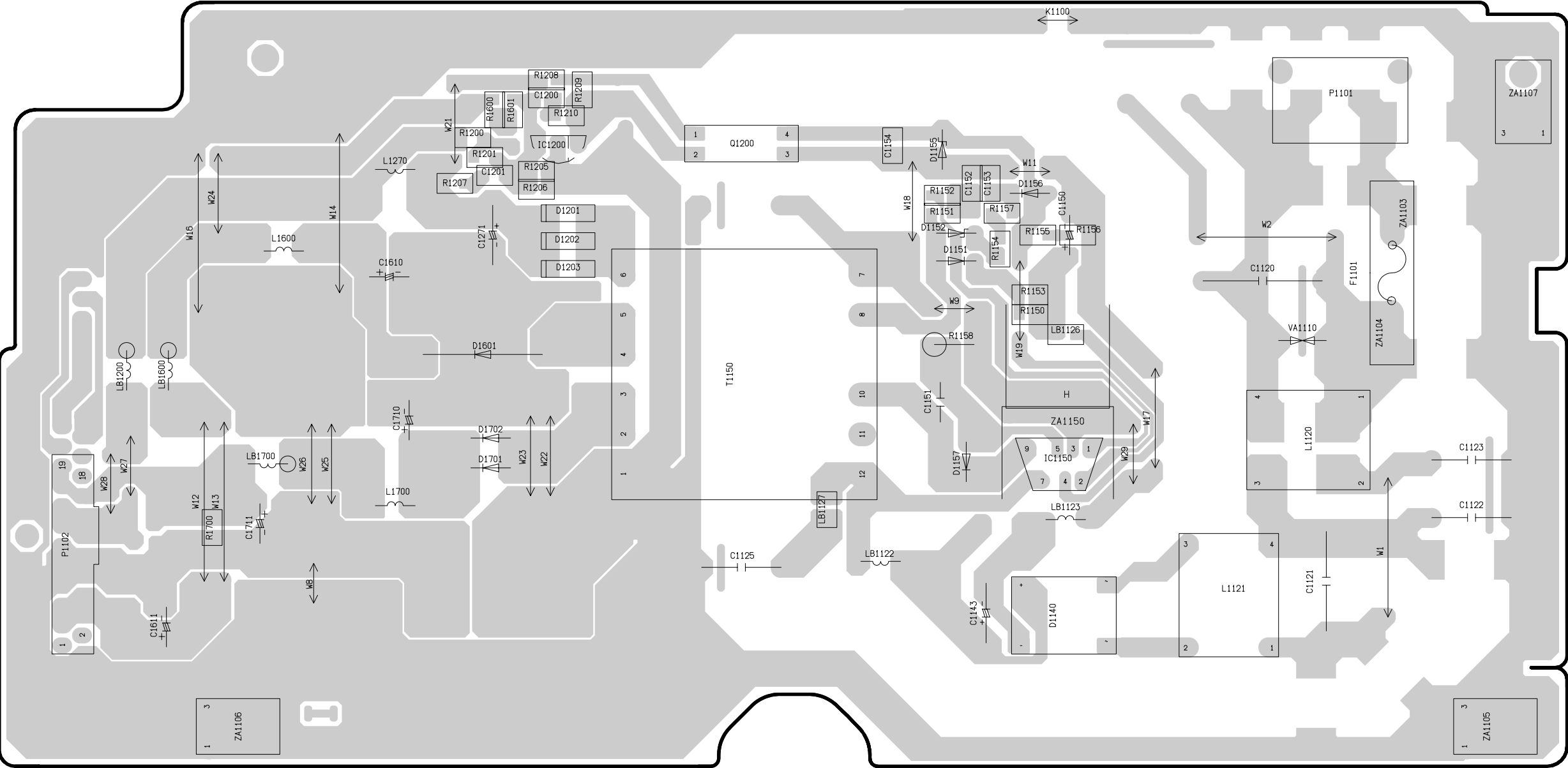


DMR-ES15EB/EP/EC/EG/EBL
Main P.C.B.
(RFKB79119C:ES15EB,
RFKB79119DT:ES15EP,
RFKB79119BT:ES15EC,
RFKB79119AT:ES15EG
RFKB79119D:ES15EBL)
(3/4 Section)

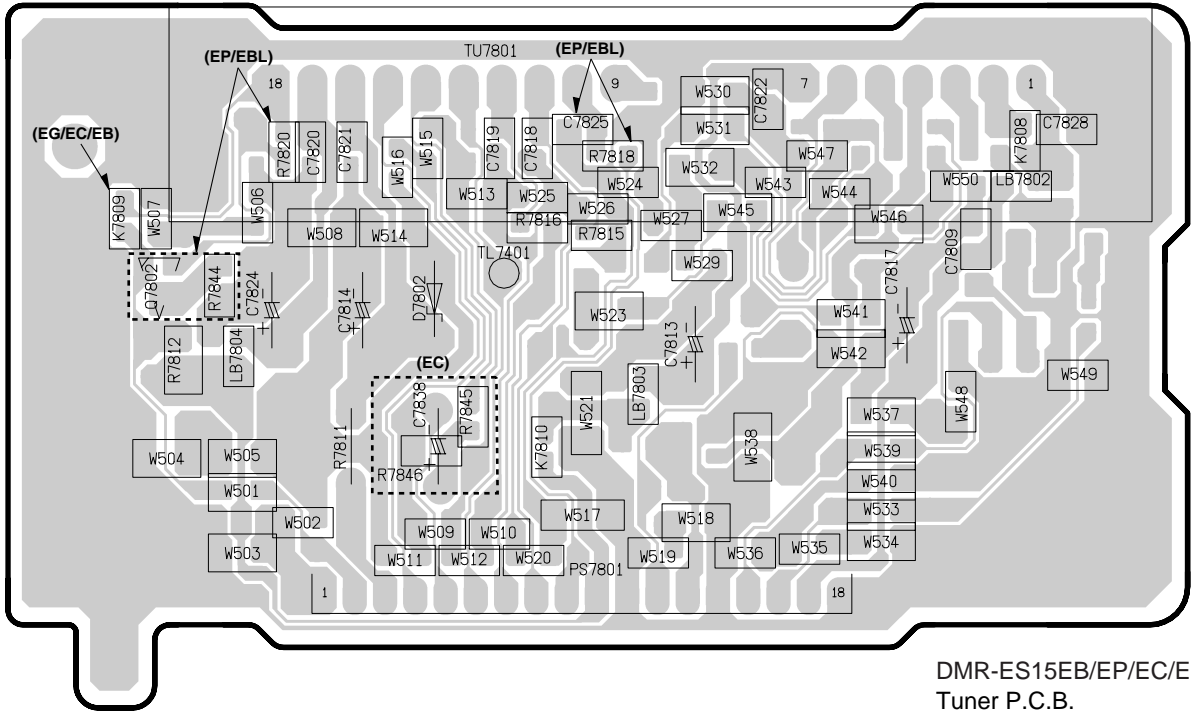
E
D
C
B
A

Power P.C.B.

Power P.C.B.									
Integrated Circuit		D1203	C-4	LB1600	C-2	C1201	D-3	R1200	D-3
IC1150	B-6	D1601	C-3	LB1700	B-2	C1271	D-3	R1201	D-3
IC1200	D-4	D1701	B-3	Fuse		C1272	B-2	R1205	D-4
Transister		D1702	C-3	F1101	C-8	C1610	C-3	R1206	D-4
Q1200	D-5	Transformer		Capacitor		C1611	B-2	R1207	D-3
Connector		T1150	C-5	C1120	C-7	C1710	C-3	R1208	D-4
P1101	D-8	Coil		C1121	B-8	C1711	B-2	R1209	D-4
P1102	B-1	L1120	C-8	C1122	B-8	Resistor		R1210	D-4
Diode		L1121	B-7	C1123	B-8	R1150	C-6	R1600	D-3
D1140	B-6	L1270	D-3	C1125	B-5	R1151	D-6	R1601	D-4
D1151	D-6	L1600	D-2	C1143	B-6	R1152	D-6	R1700	B-2
D1152	D-6	L1700	B-3	C1150	D-6	R1153	C-6	Absorber	
D1155	D-6	LB1122	B-5	C1151	C-6	R1154	C-6	VA1110	C-7
D1156	D-6	LB1123	B-6	C1152	D-6	R1155	D-6		
D1157	B-6	LB1126	C-6	C1153	D-6	R1156	D-7		
D1201	D-4	LB1127	B-5	C1154	D-6	R1157	D-6		
D1202	D-4	LB1200	C-1	C1200	D-4	R1158	C-6		

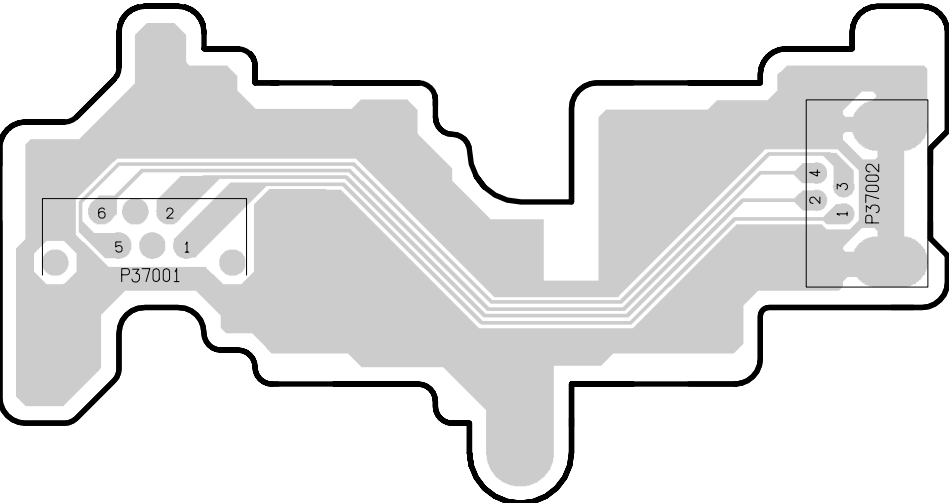


Tuner P.C.B.



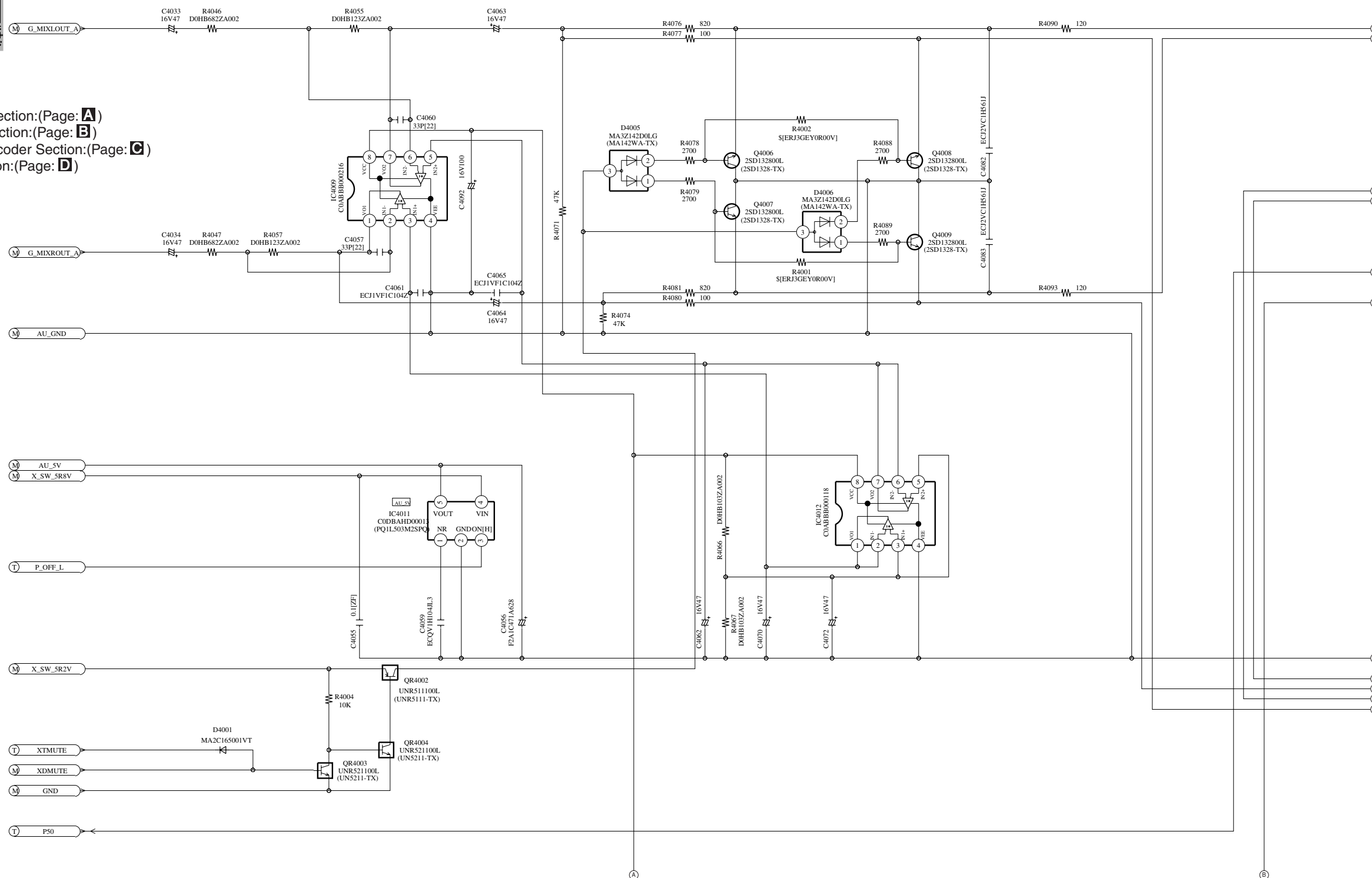
DMR-ES15EB/EP/EC/EG/EBL
Tuner P.C.B.
(VEP07A91C:ES15EB,
VEP07A91D:ES15EP/EBL,
VEP07A91B:ES15EC,
VEP07A91A:ES15EG)

DV Jack P.C.B.



DMR-ES15EB/EP/EC/EG/EBL
DV JACK P.C.B.
(VEP73135A)

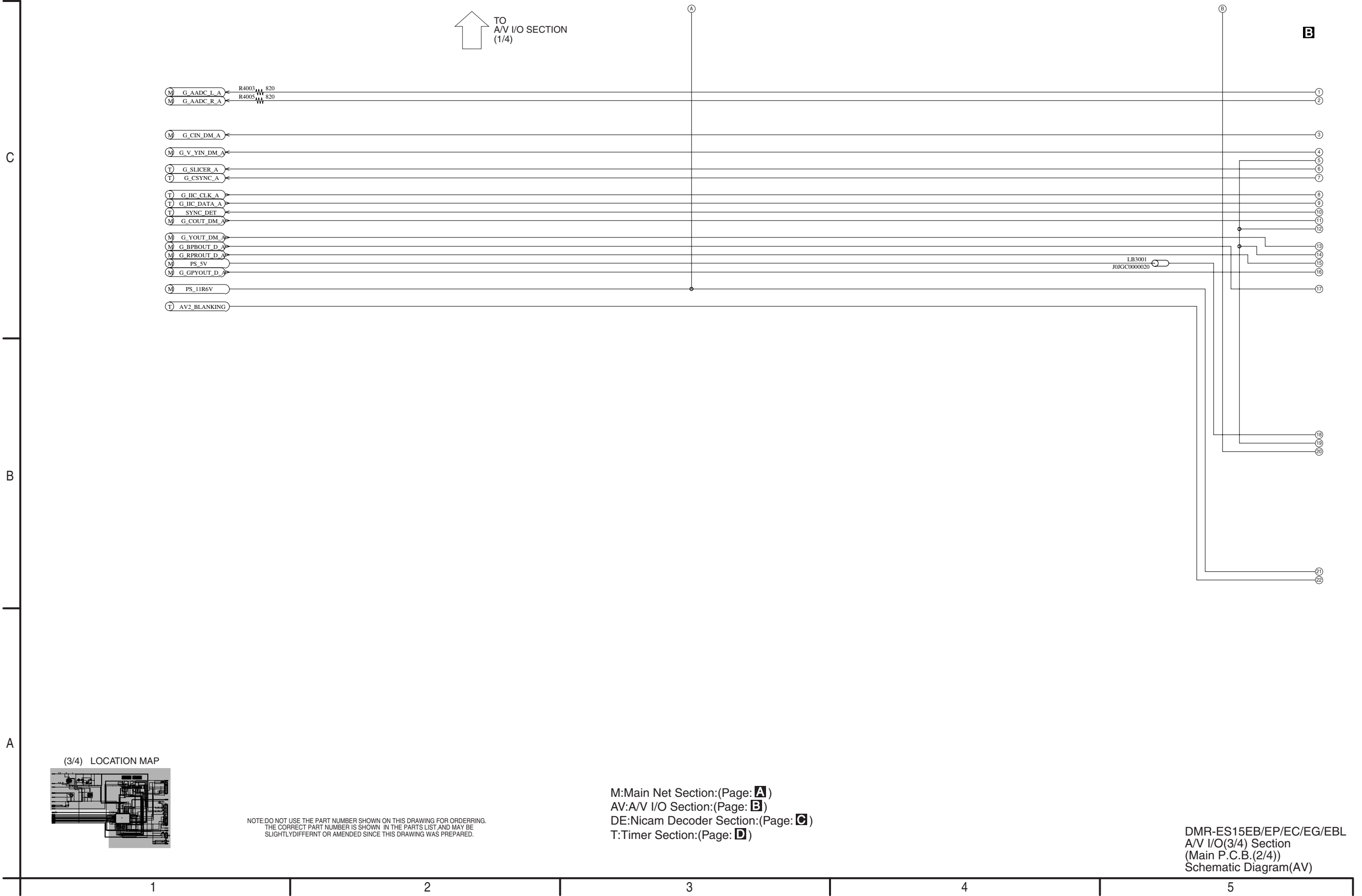
M:Main Net Section:(Page: **A**)
AV:A/V I/O Section:(Page: **B**)
DE:Nicam Decoder Section:(Page: **C**)
T:Timer Section:(Page: **D**)



NOTE:DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING.
THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST AND MAY BE
SLIGHTLYDIFFERNT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

TO
A/V I/O SECTION
(3/4)

DMR-ES15EB/EP/EC/EG/EBL
A/V I/O(1/4) Section
(Main P.C.B.(2/4))
Schematic Diagram(AV)

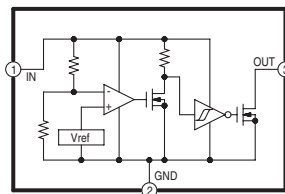




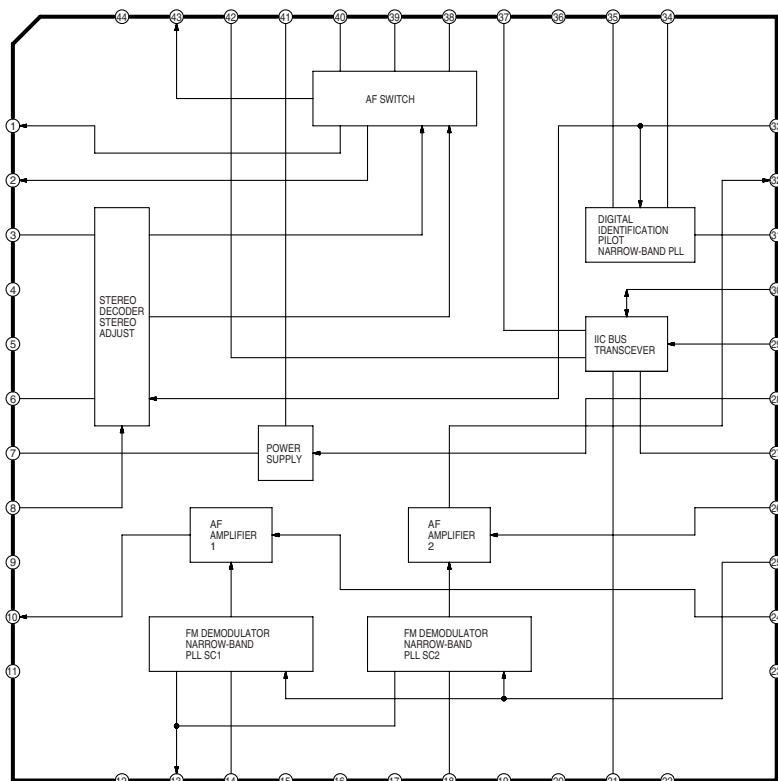
NOTE:DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING.
THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST,AND MAY BE
SLIGHTLYDIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

DMR-ES15EB/EP/EC/EG/EBL
A/V I/O(4/4) Section
(Main P.C.B.(2/4))
Schematic Diagram(AV)

IC7301 RESET IC-DETAIL BLOCK DIAGRAM

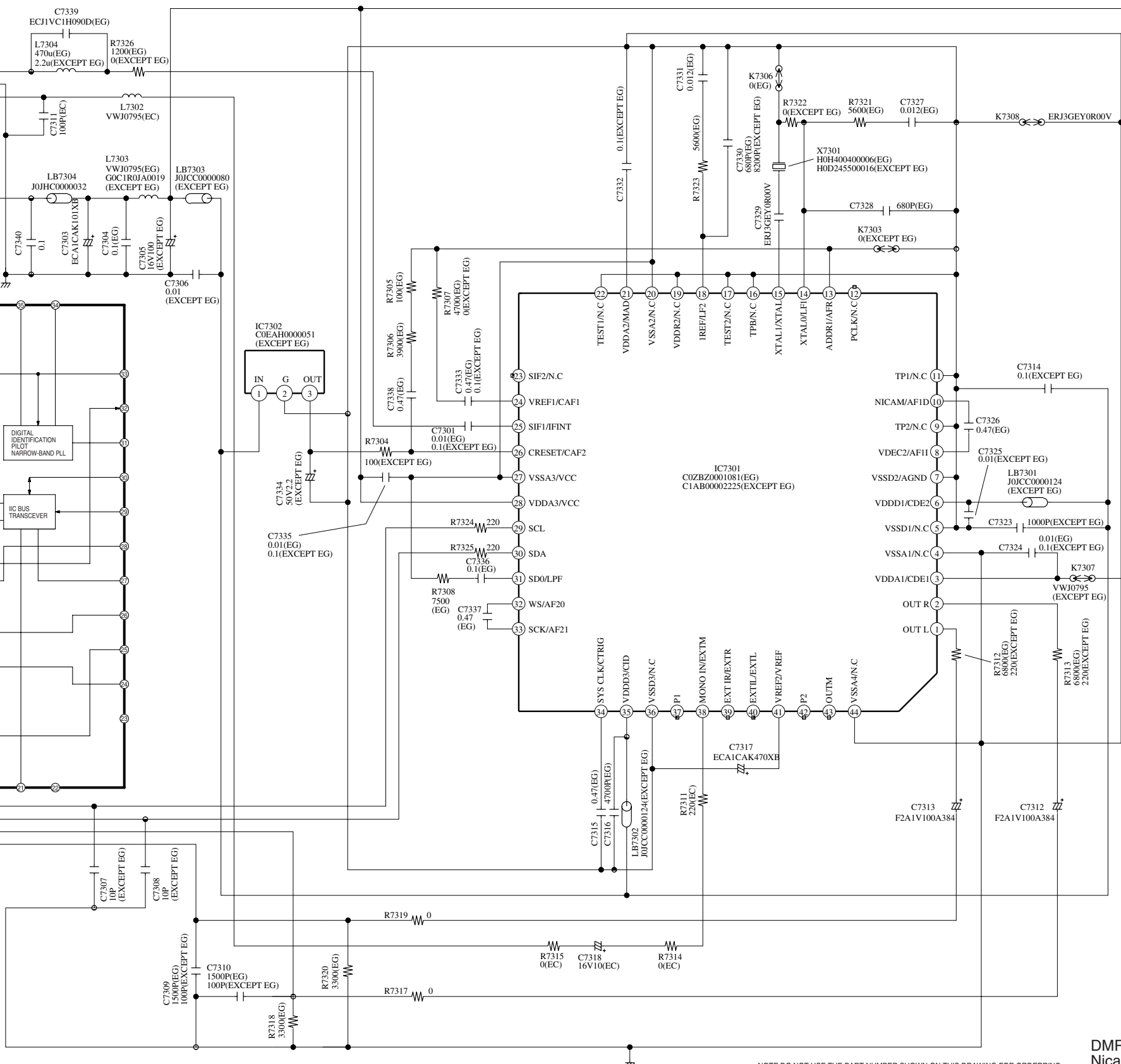


IC7302 DECODER IC-DETAIL BLOCK DIAGRAM



T G_IIC_CLK_A
T G_IIC_DATA_A
AV G_DEC_R_A
AV G_DEC_L_A

M:Main Net Section:(Page: **A**)
AV:A/V I/O Section:(Page: **B**)
DE:Nicam Decoder Section:(Page: **C**)
T:Timer Section:(Page: **D**)



NOTE:DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING.
THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST AND MAY BE
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DMR-ES15EB/EP/EC/EG/EBL
Nicom Decoder Section
(Main P.C.B.(3/4))
Schematic Diagram(DE)

TO PS57001
DIGITAL P.C.B.
(BE(2/4) SECTION)

P37001
K1KA06B00181
(IMSA-9850B-06Z900)

TPA+	1
TPA-	2
NC	3 □
NC	4 □
TPB+	5
TPB-	6

TO DV JACK
P37002
K2HZ104B0012
(IMSA-9390S-04Z901)

1	TPA+
2	TPA-
3	TPB+
4	TPB-

NOTE:DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING.
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SLIGHTLYDIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

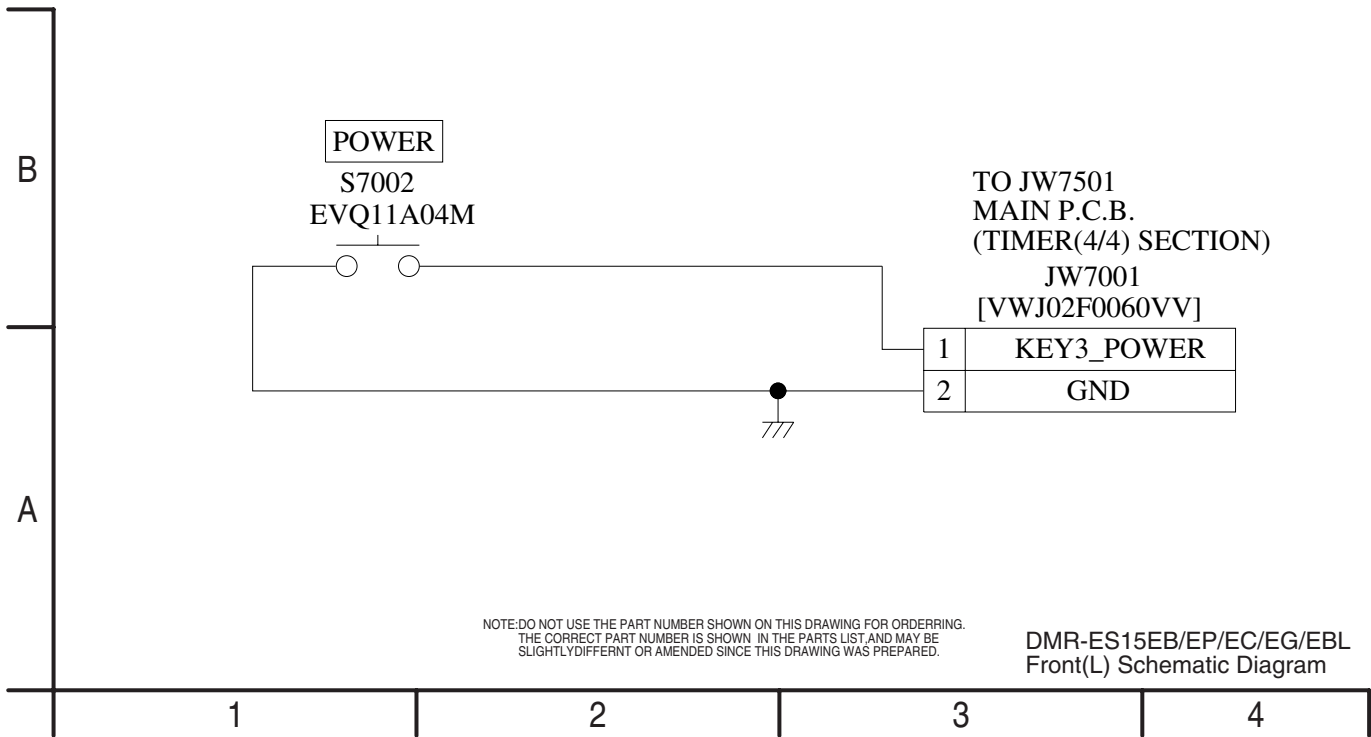
DMR-ES15EB/EP/EC/EG/EBL
DV Jack Schematic Diagram

1

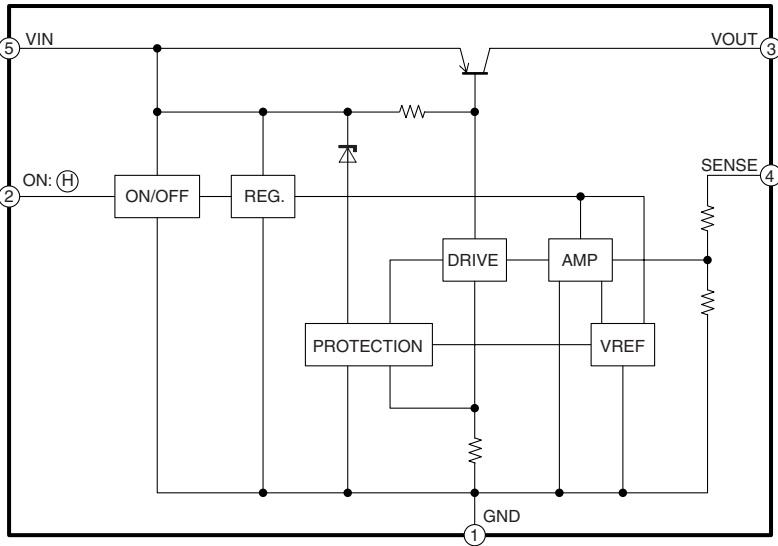
2

3

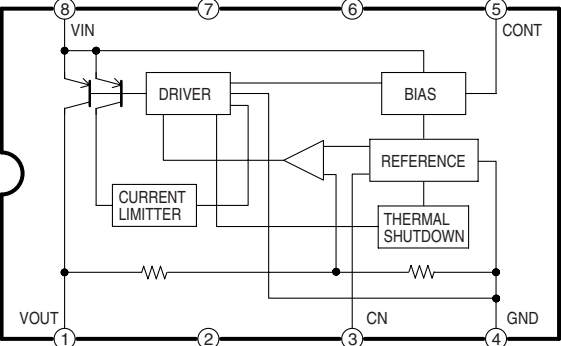
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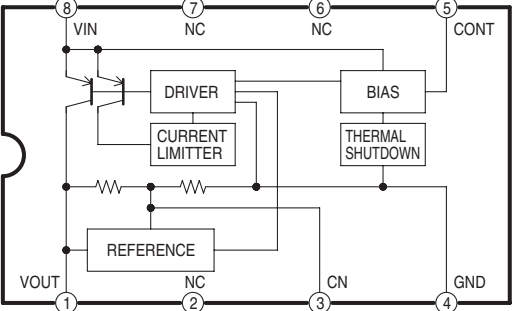
IC1501
DR +12V SWITCHING REGULATOR
IC-DETAIL BLOCK DIAGRAM



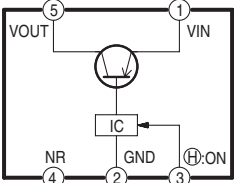
IC1507
XSW +5.2V SWITCHING REGULATOR
IC-DETAIL BLOCK DIAGRAM



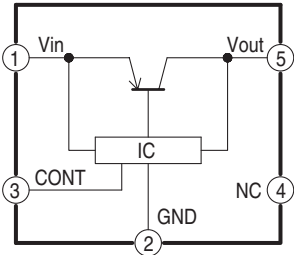
IC1521
ANA +3.3V SWITCHING REGULATOR
IC-DETAIL BLOCK DIAGRAM



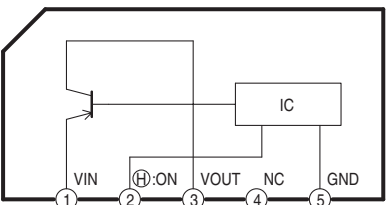
IC7402
BOOSTER +5V SWITCHING REGULATOR
IC-DETAIL BLOCK DIAGRAM



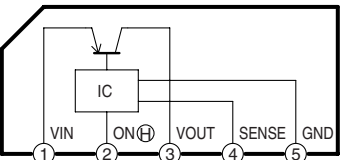
IC1505
XSW +3.3V SWITCHING REGULATOR
IC-DETAIL BLOCK DIAGRAM



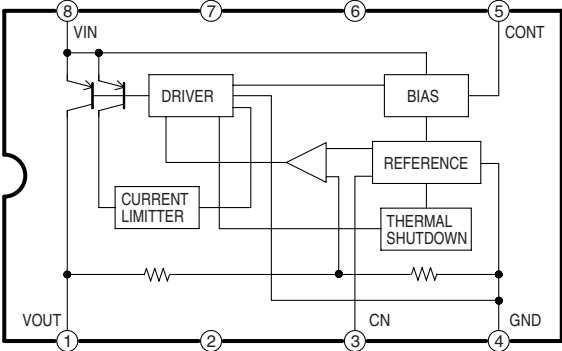
IC1510
TU +5V SWITCHING REGULATOR
IC-DETAIL BLOCK DIAGRAM



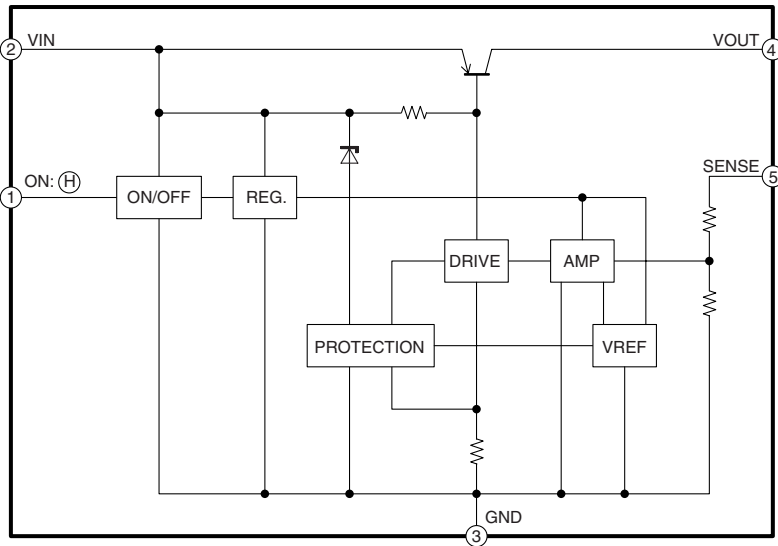
IC7401
PS +11.6V SWITCHING REGULATOR
IC-DETAIL BLOCK DIAGRAM



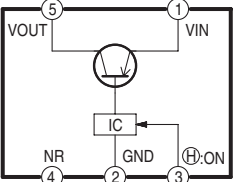
IC7403
PS +5V SWITCHING REGULATOR
IC-DETAIL BLOCK DIAGRAM



IC1506
DR +5V SWITCHING REGULATOR
IC-DETAIL BLOCK DIAGRAM

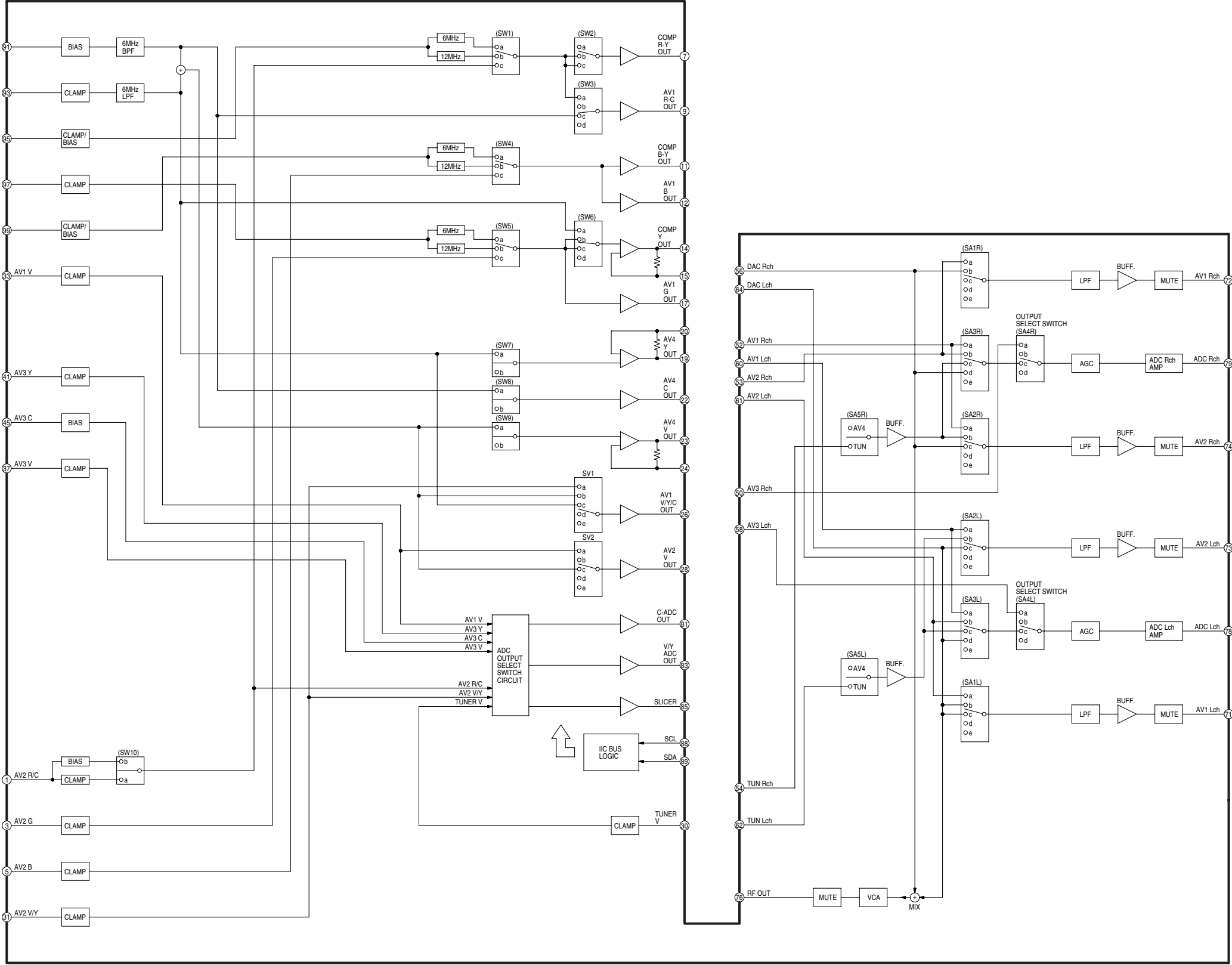


IC1520
ANA +5V SWITCHING REGULATOR
IC-DETAIL BLOCK DIAGRAM

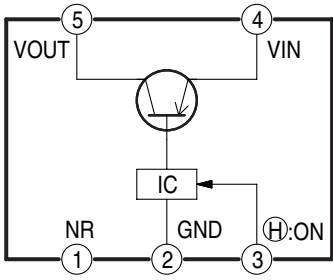


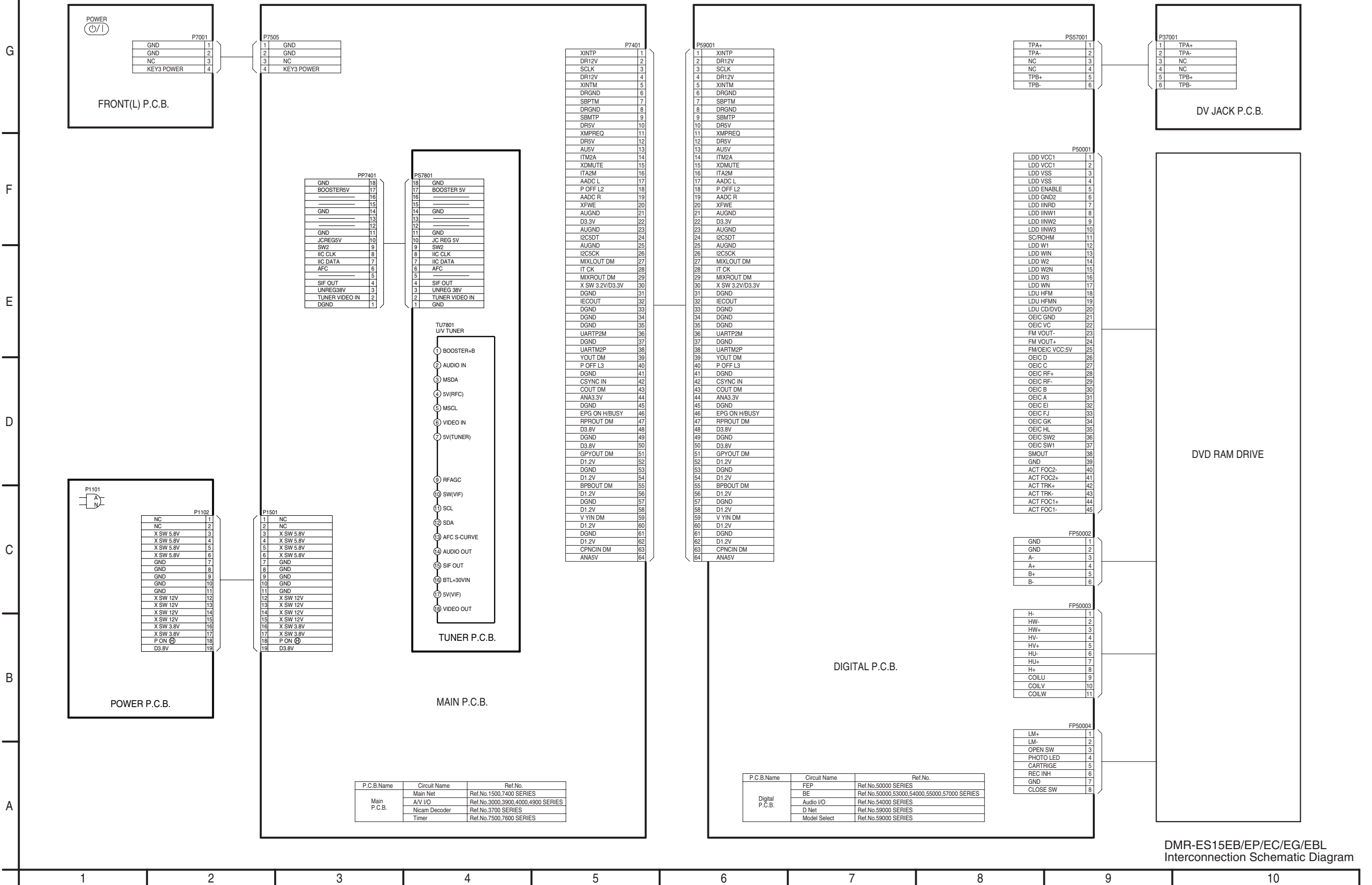
IC1501 Detail Block Diagram
IC1505 Detail Block Diagram
IC1506 Detail Block Diagram
IC1507 Detail Block Diagram
IC1510 Detail Block Diagram
IC1520 Detail Block Diagram
IC1521 Detail Block Diagram
IC7401 Detail Block Diagram
IC7402 Detail Block Diagram
IC7403 Detail Block Diagram

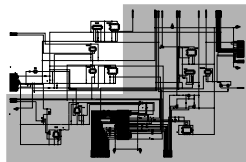
IC3001
VIDEO/AUDIO PROCESSOR
IC-DETAIL BLOCK DIAGRAM



IC4011
AU +5V SWITCHING REGULATOR
IC-DETAIL BLOCK DIAGRAM







(T) X_SW_3R3V

(T) RESET_5R2V

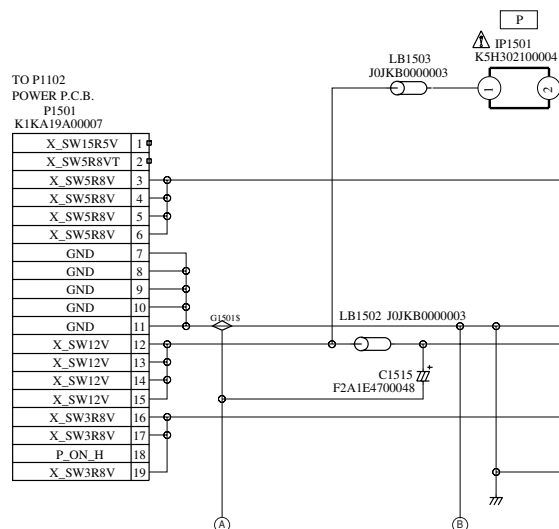
M:Main Net Section:(Page: **A**)
AV:A/V I/O Section:(Page: **B**)
DE:Nicam Decoder Section:(Page: **C**)
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IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK  HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, ONLY THE SAME TYPE.

TO P1102
POWER P.C.B.
P1501
K1KA19A00007

X_SW15R5V	1
X_SW5R8VT	2
X_SW5R8V	3
X_SW5R8V	4
X_SW5R8V	5
X_SW5R8V	6
GND	7
GND	8
GND	9
GND	10
GND	11
X_SW12V	12
X_SW12V	13
X_SW12V	14
X_SW12V	15
X_SW3R8V	16
X_SW3R8V	17
P_ON_H	18
X_SW3R8V	19



TO MAIN NET SECTION
(3/4)

DMR-ES15EB/EP/EC/EG/EBL
Main Net(1/4) Section
(Main P.C.B.(1/4))
Schematic Diagram(M)